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Shoreline Situation Report Accomack County, Virginia

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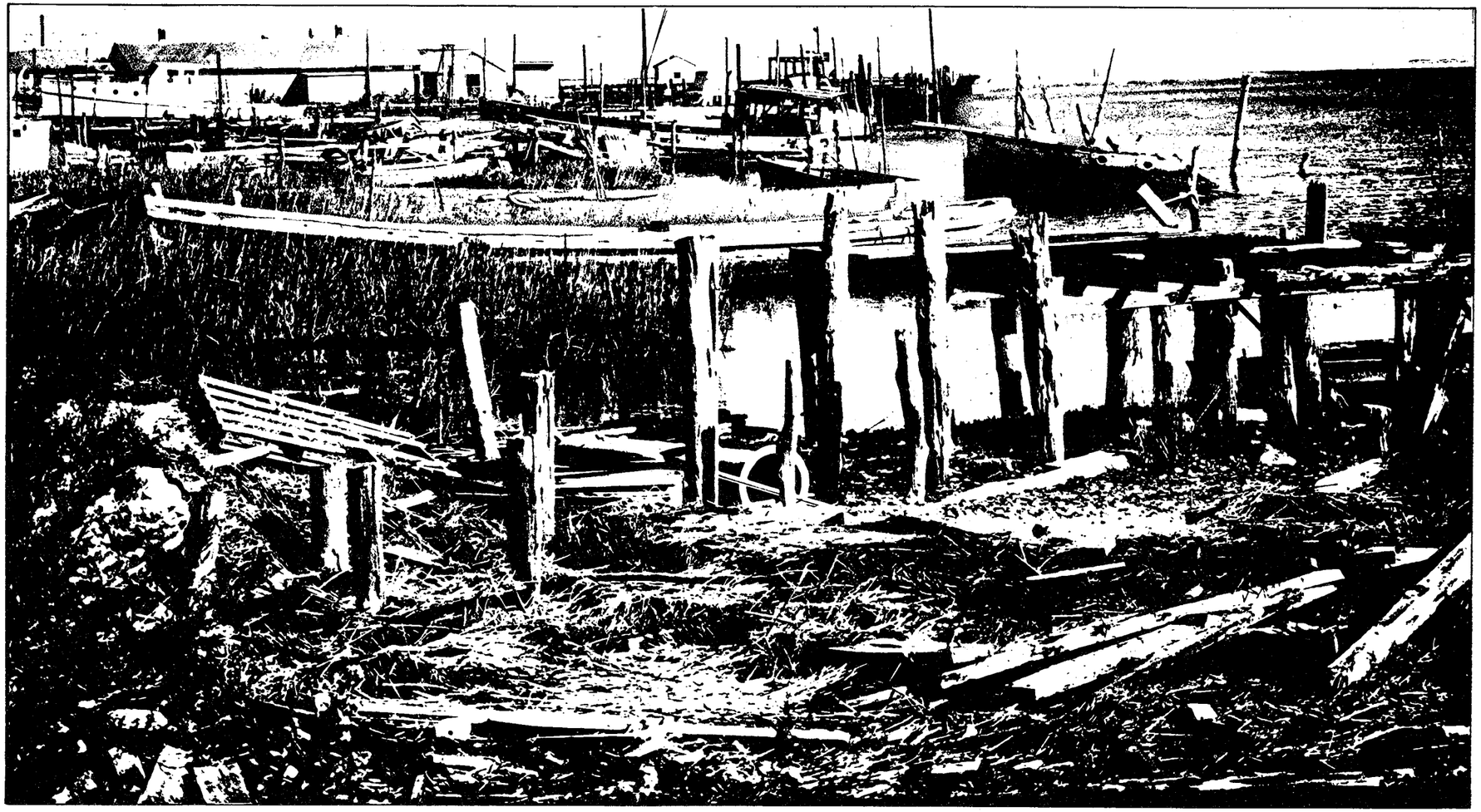
ACCOMACK COUNTY, VIRGINIA



Chesapeake Research Consortium Report Number 14

Chesapeake Research Consortium, Incorporated

The Johns Hopkins University
University of Maryland
Smithsonian Institution
Virginia Institute of Marine Science

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Special Report In Applied Marine Science and Ocean Engineering Number 80 of the

VIRGINIA INSTITUTE OF MARINE SCIENCE
William J. Hargis Jr., Director
Gloucester Point, Virginia 23062

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ACCOMACK COUNTY, VIRGINIA

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INTRODUCTION

1.1 PURPOSES AND GOALS

It is the objective of this report to supply an assessment, and at least a partial integration, of those important shoreland parameters and characteristics which will aid the planners and the managers of the shorelands in making the best decisions for the utilization of this limited and very valuable resource. The report gives particular attention to the problem of shore erosion and to recommendations concerning the alleviation of the impact of this problem. In addition we have tried to include in our assessment some of the potential uses of the shoreline, particularly with respect to recreational use, since such information could be of considerable value in the way a particular segment of coast is perceived by potential users.

The basic advocacy of the authors in the preparation of the report is that the use of shorelands should be planned rather than haphazardly developed in response to the short term pressures and interests. Careful planning could reduce the conflicts which may be expected to arise between competing interests. Shoreland utilization in many areas of the country, and indeed in some places in Virginia, has proceeded in a manner such that the very elements which attracted people to the shore have been destroyed by the lack of planning and forethought.

The major man-induced uses of the shorelands are:

-- Residential, commercial, or industrial development.
-- Recreation
-- Transportation
-- Waste disposal
-- Extraction of living and non-living resources

Aside from the above uses, the shorelands serve various ecological functions.

The role of planners and managers is to optimize the utilization of the shorelands and to minimize the conflicts arising from competing demands. Furthermore, once a particular use has been decided upon for a given segment of shoreland, both the planners and the users want that selected use to operate in the most effective manner. A park planner, for example, wants the allotted space to fulfill the design most efficiently. We hope that the results of our work are useful to the planner in designing the beach by pointing out the technical feasibility of altering or enhancing the present configuration of the shore zone. Alternately, if the use were a residential development, we would hope our work would be useful in specifying the shore erosion problem and by indicating defenses likely to succeed in containing the erosion. In summary our objective is to provide a useful tool for enlightened utilization of a limited resource, the shorelands of the Commonwealth.

Shorelands planning occurs, either formally or informally, at all levels from the private owner of shoreland property to county governments, to planning districts and to the state and federal agency level. We feel our results will be useful at all these levels. Since the most basic level of comprehensive planning and zoning is at the county or city level, we have executed our report on that level although we realize some of the information may be most useful at a higher governmental level. The Commonwealth of Virginia has traditionally chosen to place, as much as possible, the regulatory decision processes at the county level. The Virginia Wetlands Act of 1972 (Chapter 2.1, Title 62.1, Code of Virginia), for example provides for the establishment of County Boards to act on applications for alterations of wetlands. Thus, our focus at the county level is intended to interface with and to support the existing or pending county regulatory mechanisms concerning activities in the shorelands zone.

1.2 ACKNOWLEDGMENTS

The Research Applied to National Needs (RANN) Program of the National Science Foundation through the auspices of the Chesapeake Research Consortium (CRC), Inc. funded the preparation of this report. The National Oceanographic and Atmospheric Administration, through the Coastal Zone Management Act, P.L. 92-583, Grant 04-5-158-50001, provided funds to the Commonwealth, a portion of which were used for the publication of this document. Dennis Owen, Gaynor Williams, David Byrd, and Edward Hogge assisted with data collection and reduction. Beth Marshall typed the manuscript. Ken Thornberry, Bill Jenkins, Russell Bradley, and Joseph Gilley prepared the photographs and cover. Numerous other persons in Virginia and Maryland have contributed many useful ideas and criticisms. All have our thanks.

CHAPTER 2
Approach Used and Elements Considered

CHAPTER 2
APPROACH USED AND ELEMENTS CONSIDERED

2.1 APPROACH TO THE PROBLEM

In the preparation of this report the authors utilized existing information wherever possible. For example, for such elements as water quality characteristics, zoning regulations, or flood hazard, we reviewed relevant reports by local, state, or federal agencies. Much of the desired information, particularly with respect to erosional characteristics, shoreland types, and use was not available, so we performed the field work and developed classification schemes. In order to analyze successfully the shoreline behavior we placed heavy reliance on low altitude, oblique, color, 35 mm photography. We photographed the entire shoreline of each county and cataloged the slides for easy access at VIMS, where they remain available for use. We then analyzed these photographic materials, along with existing conventional aerial photography and topographic and hydrographic maps, for the desired elements. We conducted field inspection over much of the shoreline, particularly at those locations where office analysis left questions unresolved. In some cases we took additional photographs along with the field visits to document the effectiveness of shoreline defenses.

The basic shoreline unit considered is called a subsegment, which may range from a few hundred feet to several thousand feet in length. The end points of the subsegments were generally chosen on physiographic consideration such as changes in the character of erosion or deposition. In those cases where a radical change in land use occurred, the point of change was taken as a boundary point of the subsegment. Segments are a grouping of subsegments. The boundaries for segments also were selected on physiographic units such as necks or peninsulas between major tidal creeks. Finally, the county itself is considered as a sum of shoreline segments.

The format of presentation in the report follows a sequence from general summary statements for the county (Chapter 3) to tabular segment summaries and finally detailed descriptions and maps for each subsegment (Chapter 4). The purpose in choosing this format was to allow selective use of the report since some users' needs will adequately be met with the summary overview of the county while others will require the detailed discussion of particular subsegments.

2.2 CHARACTERISTICS OF THE SHORELANDS INCLUDED IN THE STUDY

The characteristics which are included in this report are listed below followed by a discussion of our treatment of each.

a) Shorelands physiographic classification
b) Shorelands use classification
c) Shorelands ownership classification
d) Zoning
e) Water quality
f) Shore erosion and shoreline defenses
g) Potential shore uses
h) Distribution of marshes
i) Flood hazard levels
j) Shellfish leases and public shellfish grounds
k) Beach quality

a) Shorelands Physiographic Classification:

The shorelands of the Chesapeake Bay System may be considered as being composed of three interacting physiographic elements: the fastlands, the shore and the nearshore. A graphic classification based on these three elements has been devised so that the types for each of the three elements portrayed side by side on a map may provide the opportunity to examine joint relationships among the elements. As an example, the application of the system permits the user to determine miles of high bluff shoreland interfacing with marsh in the shore zone.

Definitions:

Shore Zone

This is the zone of beaches and marshes. It is a buffer zone between the water body and the fastland. The seaward limit of the shore zone is the break in slope between the relatively steeper shoreface and the less steep nearshore zone. The approximate landward limit is a contour line representing one and a half times the mean tide range above mean low water (refer to Figure 1). In operation with topographic maps the inner fringe of the marsh symbols is taken as the landward limit.

The physiographic character of the marshes has also been separated into three types (see Figure 2). Fringe marsh is that which is less than 400 feet in width and which runs in a band parallel to the shore. Extensive marsh is that which has extensive acreage projecting into an estuary or river. An embayed marsh is a marsh which occupies a reentrant or drowned creek valley. The purpose in delineating these marsh types is that the effectiveness of the various functions of the marsh will, in part, be determined by type of exposure to the estuarine system. A fringe marsh may, for

example, have maximum value as a buffer to wave erosion of the fastland. An extensive marsh, on the other hand is likely a more efficient transporter of detritus and other food chain materials due to its greater drainage density than an embayed marsh. The central point is that planners, in the light of ongoing and future research, will desire to weight various functions of marshes and the physiographic delineation aids their decision making by denoting where the various types exist. The classification used is:

Beach

Marsh

Fringe marsh, <400 ft. (122 m) in width along shores

Extensive marsh

Embayed marsh, occupying a drowned valley or reentrant

Artificially stabilized

Fastland Zone

The zone extending from the landward limit of the shore zone is termed the fastland. The fastland is relatively stable and is the site of most material development or construction. The physiographic classification of the fastland is based upon the slope of the land near the water as follows:

Low shore, 20-ft. (6 m) contour >400 ft. (122 m) from fastland - shore boundary

Moderately low shore, 20-ft. (6 m) contour <400 ft. (122 m); with or without cliff

Moderately high shore, 40-ft. (12 m) contour <400 ft. (122 m); with or without cliff

High shore, 60-ft. (18 m) contour <400 ft. (122 m); with or without cliff

Dune

Artificial fill, urban and otherwise

Nearshore Zone

The nearshore zone extends from the shore zone to the 12-foot (MLW datum) contour. In the smaller tidal rivers the 6-foot depth is taken as the reference depth. The 12-foot depth is probably the maximum depth of significant sand transport by waves in the Chesapeake Bay area. Also, the distinct drop-off into the river channels begins roughly at the 12-foot depth. The nearshore zone includes any tidal flats.

The class limits for the nearshore zone classifications were chosen following a simple statistical study. The distance to the 12-foot underwater contour (isobath) was measured on the appropriate charts at one-mile intervals along the shorelines of Chesapeake Bay and the James, York, Rappahannock, and Potomac Rivers. Means and standard deviations for each of the separate regions and for the entire combined system were calculated and compared. Although the distributions were non-normal, they were generally comparable, allowing the data for the entire combined system to determine the class limits.

The calculated mean was 919 yards with a standard deviation of 1,003 yards. As our aim was to determine general, serviceable class limits, these calculated numbers were rounded to 900 and 1,000 yards respectively. The class limits were set at half the standard deviation (500 yards) each side of the mean. Using this procedure a narrow nearshore zone is one 0-400 yards in width, intermediate 400-1,400, and wide greater than 1,400.

The following definitions have no legal significance and were constructed for our classification purposes:

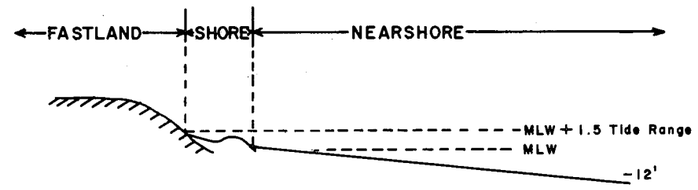
Narrow, 12-ft. (3.7 m) isobath located <400 yards from shore

Intermediate, 12-ft. (3.7 m) isobath 400-1,400 yards from shore

Wide, 12-ft. (3.7 m) isobath >1,400 yards

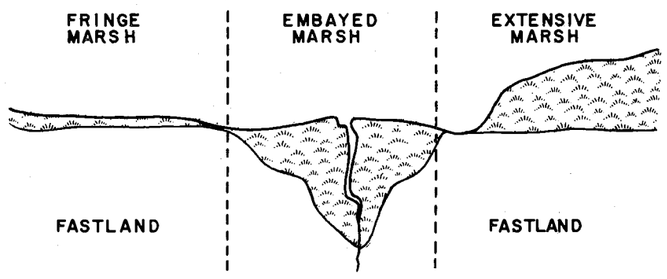
Subclasses: with or without bars
with or without tidal flats
with or without submerged vegetation

Figure 1



An illustration of the definition of the three components of the shorelands.

Figure 2



A generalized illustration of the three different marsh types.

b) Shorelands Use Classification

Fastland Zone

Residential

Includes all forms of residential use with the exception of farms and other isolated dwellings. In general, a residential area consists of four or more residential buildings adjacent to one another. Schools, churches, and isolated businesses may be included in a residential area.

Commercial

Includes buildings, parking areas, and other land directly related to retail and wholesale trade and business. This category includes small industry and other anomalous areas within the general commercial context. Marinas are considered commercial shore use.

Industrial

Includes all industrial and associated areas. Examples: warehouses, refineries, shipyards, power plants, railyards.

Government

Includes lands whose usage is specifically controlled, restricted, or regulated by governmental organizations: e.g., Camp Peary, Fort Story.

Recreation and Other Public Open Spaces

Includes designated outdoor recreation lands and miscellaneous open spaces. Examples: golf courses, tennis clubs, amusement parks, public beaches, race tracks, cemeteries, parks.

Preserved

Includes lands preserved or regulated for environmental reasons, such as wildlife or wildfowl sanctuaries, fish and shellfish conservation grounds, or other uses that would preclude development.

Agricultural

Includes fields, pastures, croplands, and other agricultural areas.

Unmanaged

Includes all open or wooded lands not included in other classifications:

a) Open: brush land, dune areas, wastelands; less than 40% tree cover.

b) Wooded: more than 40% tree cover.

The shoreland use classification applies to the general usage of the fastland area to an arbitrary distance of half mile from the shore or beach zone or to some less distant, logical barrier. In multi-usage areas one must make a subjective selection as to the primary or controlling type of usage.

Shore Zone

Bathing
Boat launching
Bird watching
Waterfowl hunting

Nearshore Zone

Pound net fishing
Shellfishing
Sport fishing
Extraction of non-living resources
Boating
Water sports

c) Shorelands Ownership Classification

The shorelands ownership classification used has two main subdivisions, private and governmental, with the governmental further divided into federal, state, county, and town or city. Application of the classification is restricted to fastlands alone since the Virginia fastlands ownership extends to mean low water. All bottoms below mean low water are in State ownership.

d) Water Quality

The ratings of satisfactory, intermediate or unsatisfactory assigned to the various subsegments are taken from a listing at the Virginia Bureau of Shellfish Sanitation, based on information from water samples collected in the various tidewater shellfishing areas. The Bureau attempts to visit each area at least once a month.

The ratings are defined primarily in regard to number of coliform bacteria. For a rating of satisfactory the maximum limit is an MPN (Most Probable Number) of 70 per 100 ml. The upper limit for fecal coliforms is an MPN of 23. Usually any count above these limits results in an unsatisfactory rating, and, from the Bureau's standpoint, results in restricting the waters from the taking of shellfish for direct sale to the consumer.

There are instances however, when the total coliform MPN may exceed 70, although the fecal MPN does not exceed 23, and other conditions are acceptable. In these cases an intermediate rating may be assigned temporarily, and the area will be permitted to remain open pending an improvement in conditions.

Although these limits are somewhat more stringent than those used in rating recreational waters

(see Virginia State Water Control Board, Water Quality Standards 1946, amended 1970), they are used here because the Bureau of Shellfish Sanitation provides the best areawide coverage available at this time. In general, any waters fitting the satisfactory or intermediate categories would be acceptable for water recreation.

e) Zoning

In cases where zoning regulations have been established the existing information pertaining to the shorelands has been included in the report.

f) Shore Erosion and Shoreline Defenses

The following ratings are used for shore erosion:

slight or none - less than 1 foot per year
moderate - - - - 1 to 3 feet per year
severe - - - - - greater than 3 feet per year

The locations with moderate and severe ratings are further specified as being critical or non-critical. The erosion is considered critical if buildings, roads, or other such structures are endangered.

The degree of erosion was determined by several means. In most locations the long term trend was determined using map comparisons of shoreline positions between the 1850's and the 1940's. In addition, aerial photographs of the late 1930's and recent years were utilized for an assessment of more recent conditions. Finally, in those areas experiencing severe erosion field inspections and interviews were held with local inhabitants.

The existing shoreline defenses were evaluated as to their effectiveness. In some case repetitive visits were made to monitor the effectiveness of recent installations. In instances where existing structures are inadequate, we have given recommendations for alternate approaches. Furthermore, recommendations are given for defenses in those areas where none currently exist. The primary emphasis is placed on expected effectiveness with secondary consideration to cost.

g) Potential Shore Uses

We placed particular attention in our study on evaluating the recreational potential of the shore zone. We included this factor in the consideration of shoreline defenses for areas of high recreational potential. Furthermore, we gave consideration to the development of artificial beaches if this method were technically feasible at a particular site.

h) Distribution of Marshes

The acreage and physiographic type of the marshes in each subsegment is listed. These estimates of acreages were obtained from topographic maps and should be considered only as approximations. Detailed county inventories of the wetlands are being conducted by the Virginia Institute of Marine Science under the authorization of the Virginia Wetlands Act of 1972 (Code of Virginia 62.1-13.4). These surveys include detailed acreages of the grass species composition within individual marsh systems. The material in this report is provided to indicate the physiographic types of marshes and to serve as a rough guide on acreages until detailed surveys are completed. Additional information of the wetlands characteristics may be found in Coastal Wetlands of Virginia: Interim Report by Marvin L. Wass and Thomas D. Wright, SRAMSOE Report No. 10, Virginia Institute of Marine Science, 1969, and in other VIMS publications.

i) Flood Hazard Levels

The assessment of tidal flooding hazard for the whole of the Virginia tidal shoreland is still incomplete. However, the United States Army Corps of Engineers has prepared reports for a number of localities which were used in this report. Two tidal flood levels are customarily used to portray the hazard. The Intermediate Regional Flood is that flood with an average recurrence time of about 100 years. An analysis of past tidal floods indicates it to have an elevation of approximately 8 feet above mean water level in the Chesapeake Bay area. The Standard Project Flood level is established for land planning purposes which is placed at the highest probable flood level.

j) Shellfish Leases and Public Grounds

The data in this report show the leased and public shellfish grounds as portrayed in the Virginia State Water Control Board publication "Shellfish growing areas in the Commonwealth of Virginia: Public, leased and condemned," November 1971, and as periodically updated in other similar reports. Since the condemnation areas change with time they are not to be taken as definitive. However, some insight to the conditions at the date of the report are available by a comparison between the shellfish grounds maps and the water quality maps for which water quality standards for shellfish were used.

k) Beach Quality

Beach quality is a subjective judgment based upon considerations such as the nature of the beach material, the length and width of the beach area, and the general aesthetic appeal of the beach setting.

CHAPTER 3
Present Shorelands Situation

CHAPTER 3

PRESENT SHORELANDS SITUATION

3.1 NATURE OF THE SHORELANDS; PHYSIOGRAPHY, LAND USE, AND OWNERSHIP

Accomack and Northampton Counties, which comprise the Eastern Shore of Virginia, form a low lying peninsula paralleled on the east by a marsh-bay-barrier island complex. The western, or bayside shore is incised by many tidal creeks, and, in Accomack County, is fronted by an extensive marsh system. Thus the area has several distinct and separate shorelines which must be considered both individually and together in terms of planning and managing. Also, as they are so often grouped together, it is important to note and compare the physiographic differences between the two counties. The greatest contrast is on the Chesapeake Bay shoreline.

The bayside shorelands of Accomack County, for the most part, are low lying fastlands behind an extensive marsh system which is incised by tidal creeks. In Northampton County, on the other hand, much of the fastland is low or moderate bluffs, composed of loosely consolidated sediments. The shore is incised by major tidal creeks which form large sub-peninsulas or necks. This contrast is strikingly borne out by a comparison of the salt marsh acreages of the Chesapeake Bay side of the peninsula: Accomack 15,500 acres, Northampton 2,250 acres. This basic physiographic difference is a major factor in planning for present and future recreational utilization, residential development, and shoreline erosion control.

It is also important to compare the major aspects of Eastern Shore physiography with that of the entire Commonwealth. The two counties have approximately 15% of the total tidal shoreline within the Virginia - Chesapeake Bay system and about 70% of the Commonwealth's oceanfront shoreline. South of Wallops Island, the barrier islands are in a natural state. This island chain is the only remaining undeveloped barrier island chain between Cape Cod and Cape Hatteras, and as such, it must be considered a unique resource by the Commonwealth. Together, the two counties possess a large portion of the beach-shoreline of the state. The peninsula also possesses approximately 47% of the state's 177,000 acres of salt marsh. The marsh acreage distribution within the Eastern Shore is:

	Bayside	Oceanside	Total
Accomack	15,460	40,627	56,087
Northampton	2,246	25,808	28,054
Total	17,706	66,435	84,141

(These numbers are estimates pending the formal wetlands inventories.)

Marshes are a most important marine resource. They serve as a habitat for waterfowl and constitute a vital link in the marine food chain. The Virginia Wetlands Act of 1972 (Chapter 2.1, Title 62.1, Code of Virginia) was passed to establish a mechanism to preserve this important marine resource.

Of the over 480 miles of shoreland in Accomack, over 400 miles (86% of the shorelands) are classified as low shore. The next most significant category is dunes, with an extent of fifty-seven and a half miles, or just under twelve percent of the county total. With the exception of one small area near Parkers Marsh (Segment 8A), all the dunes are associated with the barrier islands. The remainder of the fastland consists of very small portions of the five other categories.

The distribution of the five shore categories reflects the great marsh areas of the county. Over seventy-nine percent of the shore is marsh, primarily extensive marsh 51.7%, and fringe marsh 23.4%. Beaches comprise approximately ninety-four miles (19.1%) of the shoreline. The beaches are mostly associated with the dunes along the barrier island's Atlantic shoreline. Only one and a half percent of the county's shoreline is classified as artificially stabilized. Along the bayside, most of the nearshore is quite wide or occasionally intermediate in width. The ocean side is generally narrow.

Fastland use is more evenly distributed than the physiography: thirty-seven percent unmanaged, twenty-seven percent agricultural, and fourteen percent residential. Much of the barrier island is preserved, at present under the management of the Nature Conservancy. The small remaining areas are commercial, recreational, and governmental, with the majority of the governmental area being the N.A.S.A. facility around Wallops Island. Ownership is primarily private. At the time of data compilation, ownership of the barrier islands was in question. Recently, however, a private conservation organization, The Nature Conservancy, has obtained control of some of this land. State and county landholding are very minor.

Table 1, "Summary of Accomack County Shorelands

Physiography, Fastland Use and Ownership" is a numerical summary of the various classifications.

As will be discussed in Section 3.3, the very low nature of much of the shorelands precludes many possible land uses and limits the number of alternatives.

3.2 SHORE EROSION PROCESSES AND PATTERNS

Of Accomack County's three shorelines, only the eastern edge of the peninsula, protected by the barrier islands and vast marshes, is relatively free of erosion. The barrier islands and portions of the Chesapeake Bay shore do have erosion problems. As the erosion characteristics of the Chesapeake Bay shores and ocean shores differ, they will be discussed separately.

3.21 The Chesapeake Bay Shore. Before going into a description of the erosion characteristics, it is worthwhile to discuss the processes causing erosion and deposition.

Processes. Waves generated by local wind action are the dominant agent of erosion within the Chesapeake Bay and its tributary estuaries (e.g. The James River). The growth and height of the waves is controlled by four factors: the over water distance across which the wind blows, known as the fetch; the speed of the wind; the duration of the wind; and the depth of the water.

Due to the weather patterns affecting the Chesapeake Bay area, peak winds occur during frontal passages and storms. In Accomack County, the most severe erosion occurs during the times of northwest and north winds associated with the passage of fronts. To a lesser extent (The southwest and south), summer regional winds also generate wave activity, but the destructive wave action is greater with the northerly winds.

The winds of northeast storms during the fall, winter, and early spring generate waves which attack the western shore of the Bay. These storms have an additional, indirect effect on the Bay system's erosion patterns. The accompanying winds and low barometric pressure along the ocean coastline force additional water into the Bay. Frequently, this local "wind tide" or storm surge may be two or three feet above the normal tide level. For example, the severe northeast storm of March, 1962 caused water elevations in Norfolk Harbor to reach an elevation of 7.4 feet above mean sea level. This elevation was approximately 6 feet higher than the average spring tide. When this occurs, the wave-driven erosional action is concentrated higher on the fastland above the beach, which normally acts as a buffer.

After a storm passes, the winds frequently shift to the northwest and north. When this occurs, the eastern shore of the Bay is exposed to great wave action. The intense northwest winds pile up water on the western side of the peninsula, resulting again in the wave activity being concentrated above the usual beach level. These effects of storms are, of course, further heightened if they occur in conjunction with the higher spring tides during the lunar month.

In addition to the height of the waves, the direction at which they impinge upon the shore controls the magnitude of transport along the shoreline, a factor which is central to the question of shoreline stability. In theory, the transport of material along the beach is greatest when the waves break on the shoreline at an angle of 45 degrees. Consider a hypothetical case of a shoreline several miles in length where the fastland is a bluff composed of a mixture of stratified gravel, sand, silt, and clay, a situation which is typical of much of Northampton's Bay shoreline. Under wave attack, particularly if the water level is high due to the tide or storm surge, the cliff itself may be undercut, causing face material to slump to the base. Continued wave action on the slumped material would winnow away the silts and clays, leaving the sand and gravel to form a beach. Some of the sand and gravel will be transported along the beach (littoral drift). The beach itself acts as a buffer to wave energy as the waves break and run up and back down the sloping foreshore. If there is sufficient sand drifting along the shore zone from the updrift segment of the coast, the beach at any given site may remain full enough to cushion the effects of a particular storm. If, however, the sand supply updrift is stopped for one reason or another, the buffer effect is reduced and erosion will ensue.

Much of the sand moving along the Virginia coastline is ultimately deposited as spits or bars in front of lesser tributary creeks, where it may contribute to the choking off of the entrance channel.

The erosional behavior of any particular segment of shoreline may be expected to vary from year to year, depending upon the frequency and the intensity of storms. Furthermore, similar variability may also arise from differences in average mean sea level elevations. The long-term

(decades) trend is for a relative rise in sea level. In the lower Chesapeake Bay, the trend is about 0.01 feet per year. However, yearly variations of 0.15 feet per year are not uncommon. Although these differences are small, they can be significant in terms of horizontal distances across a gently sloping shore. The long-term trend has dramatic consequences.

The role played by beaches in the physical processes of the coastline merits reiteration: beaches are natural land forms which serve to absorb incident wave energy, thereby inhibiting erosion of the fastland. The details of the configuration of any given beach may change hour by hour or day by day as the accumulation of sand adjusts to changing conditions. By and large, the natural maintenance of beaches along Virginia's Chesapeake Bay system shoreline is attained at the expense of erosion of the fastlands. For any particular segment of shoreline, the beach sand is derived from erosion of the fastland at that site or from erosion at an updrift site.

Erosion of Bayside Shores. In general, the erosion of Accomack's Bayside shore is less than that of most of the counties having Bay margins. This is attributable to the extremely broad nearshore zone, the sheltering of the subaqueous platform west of Tangier Sound, and the great extent of the marsh areas. The marshes, although somewhat more resistant to erosion than sandy bluffs, do not have a substantial sand content. As a result, marshes, when eroded, generally do not leave a residual sand supply for the formation of protective frontal beaches.

Excluding Tangier Island, the average erosion rate of the Bay shoreline (approximately fifty miles long, excluding tidal creeks) is 2.2 feet per year. This average rate dips to 1.6 feet per year for marsh margins and rises to almost 3 feet per year for shorelines of permeable sand beaches (Peter Rosen, VIMS dissertation, in preparation). Some of the specific erosion sites are Powells Bluff - 6 feet per year, Scarboro Neck - 5 feet per year, and Saxis Island - 4.8 feet per year. The western face of Tangier Island is a special problem where marsh face erosion rates are 18 to 20 feet per year. Tangier Island represents the most critical erosion in the county and requires immediate attention.

As is shown in the tables and summaries, there are few shore protective structures in the county. With a few exceptions, this indicates the generally noncritical nature of the shoreline erosion. The most often stated "Suggested Action" in Table 2 is the repair or modification of the existing structures.

3.22 Ocean Shoreline. The ocean shoreline of Accomack County is characterized by a series of six barrier islands. The inlets which separate the islands flush the interior marsh and lagoon complexes. With the exception of Parramore Island, the islands are simple, low lying, marsh segments with backshore dunes and an oceanside veneer of sand. As the littoral drift is relatively small, the situation is one of pronounced erosion. However, local dynamics related to Wachapreague Inlet cause accretion on the northern end of Parramore Island.

It is essential to understand the processes of oceanside erosion before discussing erosion rates or potential utilization of the islands. It is particularly important to consider what happens during coastal storms.

Along the Virginia coastline the most damaging storms are the "northeasters" and the occasional hurricanes. Aside from the intense wave action, there is generally a one to three foot storm surge. The surge has two important effects. The erosive power of the waves is translated further up onto the island, allowing the high waves to wash backshore dune sand into the ocean and to smear sand over the marsh surface. The sand washed over the marsh raises the ground elevation. In time, the highly productive marsh grass is replaced by other species, and the sand in the washovers is temporarily lost from the active beach littoral transport system. The washovers can also affect the circulation within the marshes and bays by filling some of the tidal channels and forcing a redistribution of flow. The surge and high waves may also breach the islands, possibly causing new inlets to form. This action is strikingly exemplified by the numerous breaches in the southern part of Metomkin Island.

These processes are natural responses of the barrier islands. As the shoreface retreats, former marsh deposits are excavated, and the washover deposits and wind-shaped dunes supply sand to the beach. The physiographic components one finds on the islands today (beach, dunes, and washovers) existed a century ago, even though the entire ensemble is retreating. An island by island analysis follows:

Assateague Island - The lower half of Assateague has been relatively stable during the time period with the exception of the pronounced growth of

Fishing Point. The Corps of Engineers (unpublished manuscript) estimates sand is being trapped in this area at a rate of about 500,000 cubic yards per year. Thus, the growth of Fishing Point represents a loss of sand supply to the islands to the south. Fishing Point did not exist in 1850.

Wallops Island - The southern half of Wallops Island has been stabilized by the installation of bulkheading and groins. Prior to these installations the erosion rate was about 7 feet per year.

Assawoman Island - Comparison of shoreline positions between 1852 and 1962 indicates a long-term erosion rate of about 15 feet per year. The Ash Wednesday storm of 1962 caused the formation of two new inlets into Kegotank Bay. These have since refilled and mended.

Metomkin Island - The island has experienced a rather uniform long-term recession rate of about 17 feet per year. During the mid-1950's a new shallow inlet was formed into Metomkin Bay and during the 1962 storm several other breaches occurred. These breakthroughs have not healed, and at the present, the island is badly dissected.

The first breakthrough resulted in the loss of approximately 200 acres of productive tidal flat bottom through the formation of sand deltas on the inner side of the new inlets. By 1967, this loss increased to about 500 acres. The situation is now critical, as there is little lik
toral drift. The ebb channels feeding the new inlets have now become deep enough to maintain a scouring action and the ebb flow which was keeping Metomkin Inlet flushed is now being diverted. Metomkin Inlet may eventually be closed entirely.

Cedar Island - The island experienced dramatic recession until 1910. Between 1910 and 1962 the recession rate was less severe. From 1850 to 1962, Cedar Island lost an average of about 14 feet per year.

Parramore Island - The erosion pattern of this island is characterized by accretion on the north end of the island accompanied by dramatic erosion on the southern end. This pattern is associated with the behavior of the deep, tidal inlets flanking the island and with the refraction of incoming waves. These waves tend to trap by-passing sand on the northern ends of the islands. The northern end of Parramore has accreted at a rate of about 8 feet per year (1850 to 1962), while the southern two-thirds of the island has retreated at about 16 feet per year during the same period.

The magnitude of erosion in any given year, of course, is controlled by the frequencies and characteristics of the storms during that year. Two over-riding facts must be borne in mind when considering the barrier island erosion problem:

1) Mean sea level is rising.
2) The barrier islands are not receiving a large supply of sand from the north to feed the predominantly southerly littoral drift.

The consequence of these facts is an eroding shoreline.

There have been no significant attempts at shoreline stabilization of the barrier islands. Any suggestions of effective shoreline stabilization procedures must be predicated with particular management goals in mind. If the goal was to check further shoreline retreat, the installation of bulkheads with groins would likely be the most successful approach. Costs for this action would approach one million dollars per statute mile and expensive periodic maintenance would be required. The installation of a uniform dune line would inhibit the overwashing and the breaching of the islands. However, the trade-offs in such an approach must be fully realized. The washover process carries sand to the back side of the islands, and it is through this mechanism that the island is maintained. Since the installation and maintenance of a dune line inhibits washovers but does not, in itself, stop foreshore erosion, the long-term trend would be a reduction in island width.

3.23 Interior Oceanside Shoreline. The shoreline on the western fringe of the barrier island-marsh-lagoon complex is, to a large extent, protected by fringe or extensive marshes and, therefore, is relatively stable. In those areas without frontal marsh, the rate of erosion is generally very slight due to the limited fetch and shallowness of the adjacent bays.

3.3 POTENTIAL SHORE USES AND UNIQUE FEATURES

As a broad generality, the potential for significantly altered shoreland uses in Accomack County is quite low. On the Chesapeake Bay side, the vast areas of low marshes come between the fastland and the open waters of the Bay. The marshes do serve to protect the shore from high waters and storms, but they severely limit direct access to the water. Perhaps the bayside areas with the greatest potential for recreational or residential development are the lands bordering

the larger creeks: Occohannock, Nandua, Pungoteague, Onancock Creeks and the like. These creeks penetrate the upland, are easily access from the fastland and can serve as marine highways to the Bay. The fastlands bordering these creeks probably could tolerate a moderately increased population of either residential or vacation homes. Any development, however, should be planned and managed so as to hold any waste discharge to a bare minimum. Otherwise, the very valuable shellfish areas might be lost as a viable economic resource. Similarly, any expanded boating facilities should be planned and controlled so as not to harm the water quality.

The Atlantic side of the Eastern Shore also offers a potential for recreational development. The barrier islands are not suitable for development. In conjunction with already mentioned dramatic erosion rates, any developed areas on the islands would be exposed to the real and frequent danger of very high storm and hurricane tides. Indeed, several of the islands show clear evidence of numerous storm washovers.

The inner or peninsula shore on the oceanside of the county does not have the great danger of erosion but does have the problem of storm tides. Near the land-marsh interface, the fastland is quite low and is subject to storm flooding. The Corps of Engineers Flood Plain Report for Wachapreague (Norfolk District, March 1971) indicates that areas near Wachapreague lower than nine feet MSL can expect to be innundated on the order of every several decades. Aside from this one detriment, however, the area might well support an increased population. With relatively easy access to the ocean via the Intercoastal Waterway, the interior shore offers considerable potential for recreational development.

A major factor in the development potential of Accomack County is the spectre of economically significant petroleum reservoirs on the Outer Continental Shelf of the Virginia Sea. It is quite possible that the Eastern Shore might be considered as a site of the initial onshore facilities. If the petroleum should be piped onshore from offshore distribution points, the major tidal inlets, e.g., Wachapreague Inlet, have a potential as natural pipeline corridors. Obviously, if this should happen, the county would have to be prepared to manage the increase, however great or small, in industry and population, and in the concomitant potential for environmental damage.

Figure 3

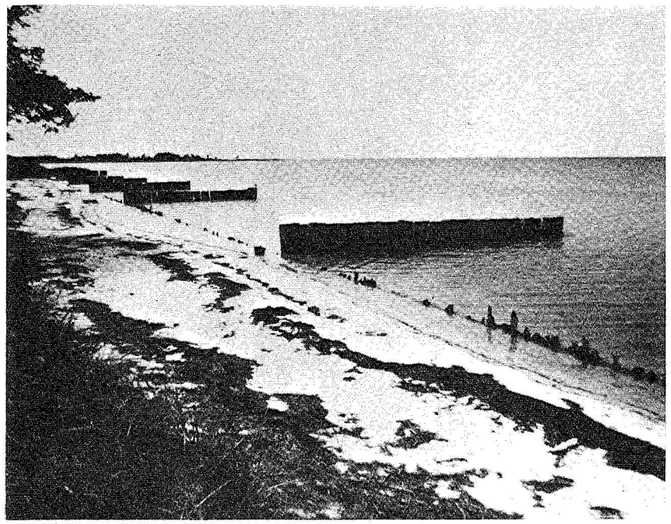


Figure 4

Figure 5

Figure 3: Mason Beach on Hack Neck. One of Accomack County's few open beaches on Chesapeake Bay.

Figure 4: East Point, showing one of several ineffective groin fields along the county's western shore. Groins are effective shore protection structures only if there is a sufficient volume of sand in the littoral system. There is no major updrift source along this section of shoreline.

Figure 5: Onancock Creek and the town of Onancock (Segment 7). Natural tidal streams, such as Onancock Creek, have the greatest use and greatest use potential of the county's lands near the Bay. The area is far enough from the Bay to be relatively free of storm damage, yet it offers good access to the water.

Figure 6: East Point on Onancock Creek. Although the groins shown in the aerial photograph appear to be trapping some sand, their offset from the shore indicates that they have not been totally effective in stopping erosion.

Figure 7: An aerial photograph of a commercially used portion of Chesconessex Creek.

Figure 6

Figure 7

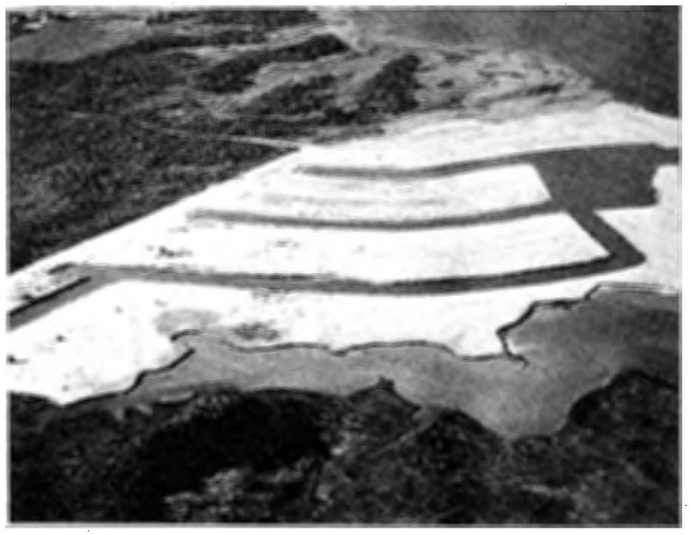


Figure 8

Figure 9

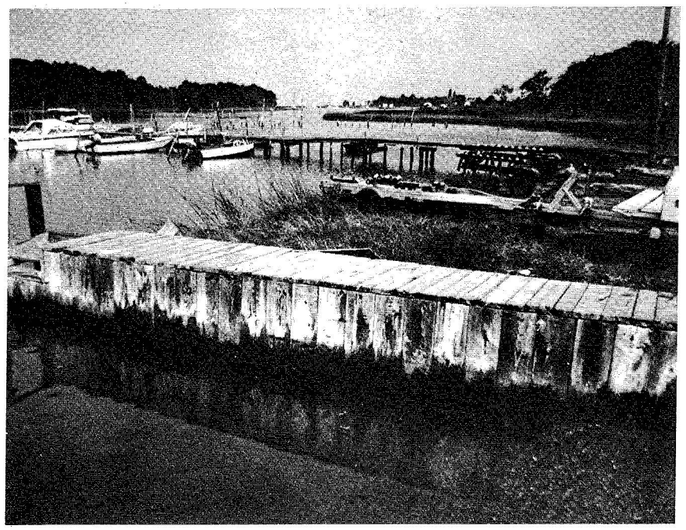


Figure 10

Figure 11

Figure 8: Schooner Bay, near Factory Point. These filled marsh areas and dredged, dead-end canals are environmentally unsound and are now restricted by state and federal legislation.

Figure 9: The Deep Creek area (Segment 9) is a developed area on a tidal stream similar to that shown in Figure 5.

Figure 10: Hunting Creek near the Real Point boat ramp (Subsegment 10A) is another of the Chesapeake Bay's tidal tributaries. Unlike the areas shown in previous photographs, the use potential here is low. The stream does not penetrate the higher fastlands and the low lying areas are highly susceptible to flooding.

Figure 11: East of Flag Point Landing (Subsegment 11B), one of the few areas of severe erosion on the western shore of the county. Carefully planned and coordinated shore protection efforts would be more successful and pleasing then the hastily constructed stopgap measures often employed in the area.

Figure 12: The dredged canals and spoil area of the Fox Grove area (Segment 16).

Figure 12

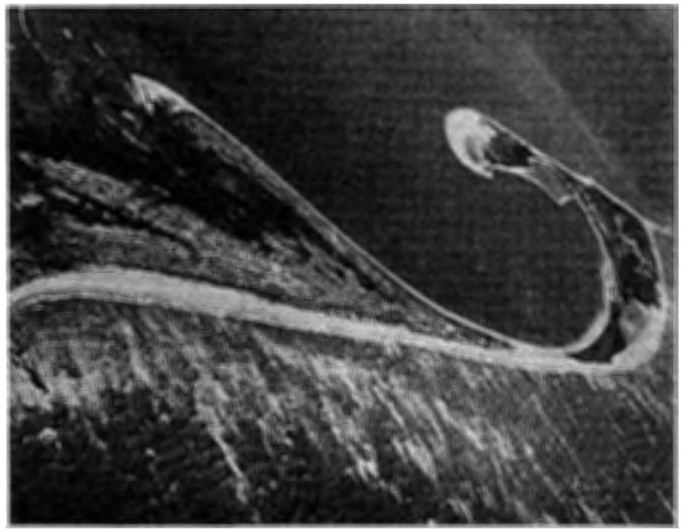


Figure 13

Figure 13: This large recurved spit on the south end of Tangier Island is the final depository for much of the sediment transported along and eroded from the island's western face.

Figure 14: The western face of Tangier Island has a very severe erosion problem. Average long term erosion rates are over 15 feet per year. Since this photograph was taken in December, 1972, the shoreline has retreated to the runway pavement.

Figure 15: The dredged harbor at Quinby in the southeastern portion of the county. The ocean-side interior shoreline of Accomack County has a very high development potential with its several good harbors and easy access to the ocean.

Figure 16: The northern part of the town of Wachapreague and the wide, deep channel which provides ready access along the shore and to the ocean.

Figure 17: The Wachapreague waterfront.

Figure 14

Figure 15

Figure 16

Figure 17

Figure 18

Figure 19

Figure 18: The low tide waterfront at the end of Route 766 at Watts Bay (Segment 17).

Figure 19: A gabion bulkhead behind the marsh in the Captains Cove area of Segment 18. The type and location of the structure is frequently recommended because of its low cost and relative lack of environmental degradation.

Figure 20: A dredged canal and filled marsh area in northern Accomack County. The development has been forced to modify its original designs in order to decrease and rectify environmental damage. The lack of good circulation in the canals can result in significant water quality problems.

Figure 21: An aerial view of Chincoteague, one of Virginia's more widely known vacation areas. Its easy access to deep water and proximity to ocean beaches make it a popular summer haven.

Figure 22: An aerial overview of Assateague Island, an undeveloped National Seashore.

Figure 20

Figure 21

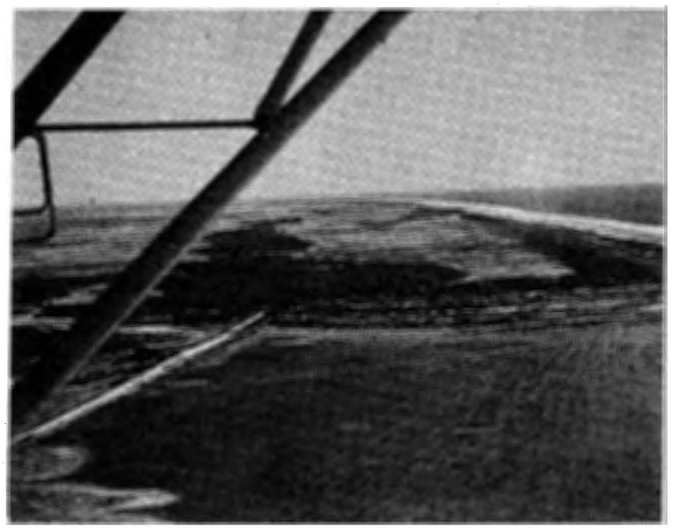


Figure 22

MAP 1A

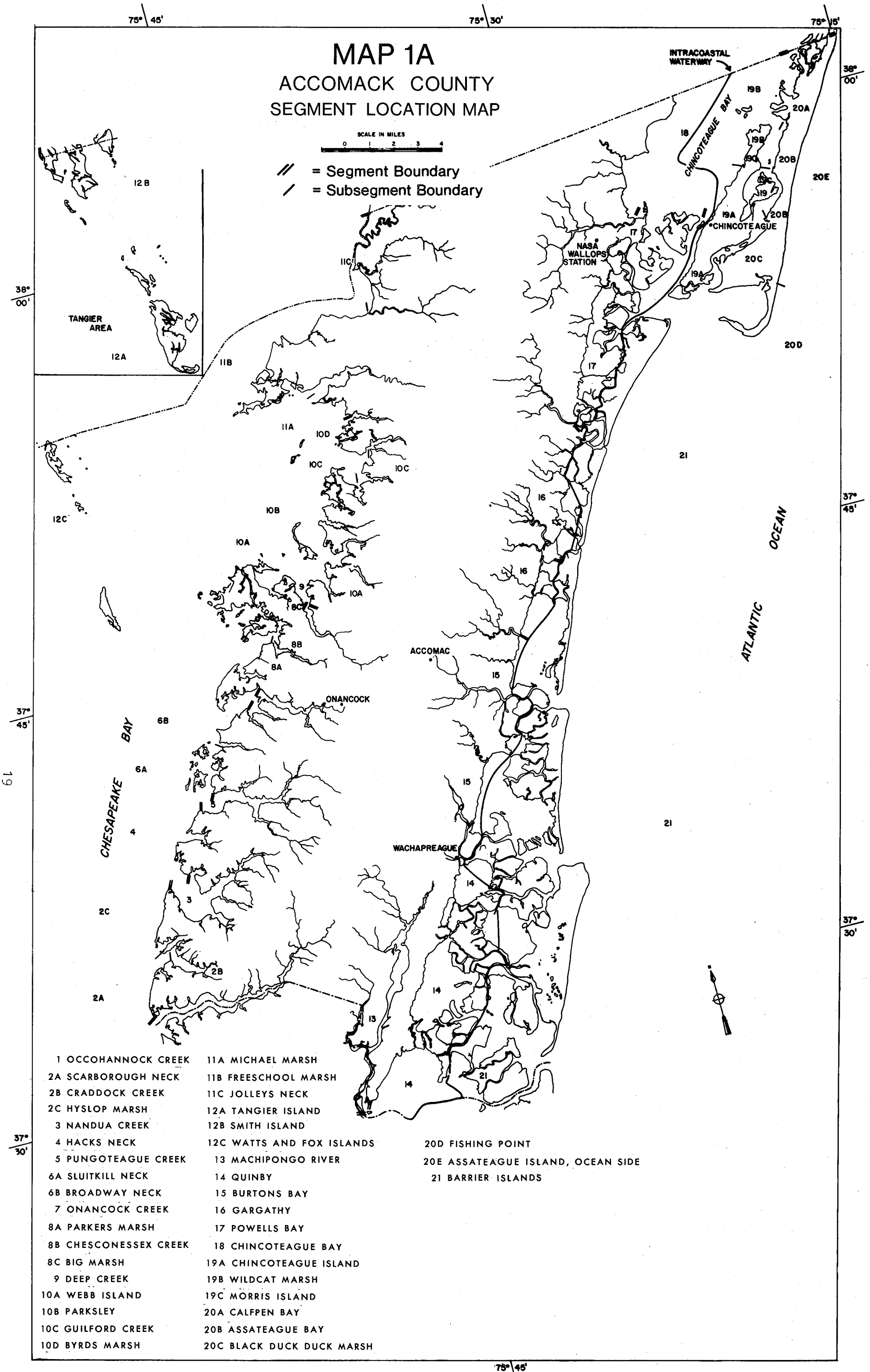
ACCOMACK COUNTY

SEGMENT LOCATION MAP

SCALE IN MILES 0 1 2 3 4

// = Segment Boundary

/ = Subsegment Boundary



1 OCCOHANNOCK CREEK
2A SCARBOROUGH NECK
2B CRADDOCK CREEK
2C HYSLOP MARSH
3 NANDUA CREEK
4 HACKS NECK
5 PUNGOTEAGUE CREEK
6A SLUITKILL NECK
6B BROADWAY NECK
7 ONANCOCK CREEK
8A PARKERS MARSH
8B CHESCONESSEX CREEK
8C BIG MARSH
9 DEEP CREEK
10A WEBB ISLAND
10B PARKSLEY
10C GUILFORD CREEK
10D BYRDS MARSH
11A MICHAEL MARSH
11B FREESCHOOL MARSH
11C JOLLEYS NECK
12A TANGIER ISLAND
12B SMITH ISLAND
12C WATTS AND FOX ISLANDS
13 MACHIPONGO RIVER
14 QUINBY
15 BURTONS BAY
16 GARGATHY
17 POWELLS BAY
18 CHINCOTEAGUE BAY
19A CHINCOTEAGUE ISLAND
19B WILDCAT MARSH
19C MORRIS ISLAND
20A CALFPEN BAY
20B ASSATEAGUE BAY
20C BLACK DUCK DUCK MARSH
20D FISHING POINT
20E ASSATEAGUE ISLAND, OCEAN SIDE
21 BARRIER ISLANDS

MAP 1B

ACCOMACK COUNTY

SHORELANDS TYPES

SCALE IN MILES 0 1 2 3 4

75° 45' 75° 30' 75° 15'

38° 00' 37° 45' 37° 30'

INTRACOASTAL WATERWAY

CHINCOTEAGUE BAY

ATLANTIC OCEAN

CHESAPEAKE BAY

TANGIER AREA

CHINCOTEAGUE

NASA WALLOPS STATION

ACCOMAC

ONANCOCK

WACHAPREAGUE

12B 12A 12C 11C 11B 11A 10D 10C 10B 10A 9 8B 8A 7 6B 6A 5 4 3 2C 2B 2A 1 20B 20A 19B 19A 20E 20C 20D 18 17 16 15 14 21

FASTLAND

- Low Shore
- Low Shore with Bluff
- Moderately Low Shore
- Moderately Low Shore with Bluff
- Moderately High Shore
- Moderately High Shore with Bluff
- High Shore
- High Shore with Bluff
- Dune
- Artificial Fill

SHORE

- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh
- Artificially Stabilized

NEARSHORE

- Narrow
- Intermediate
- Wide

MAP 1C

ACCOMACK COUNTY

FASTLAND USE, OWNERSHIP

SCALE IN MILES 0 1 2 3 4

75° 45' 75° 30' 75° 15'

38° 00' 37° 45' 37° 30' 36° 00'

TANGIER AREA

CHESAPEAKE BAY

ATLANTIC OCEAN

INTRACOASTAL WATERWAY

CHINCOTEAGUE BAY

NASA WALLOPS STATION

ACCOMAC

ONANCOCK

WACHAPREAGUE

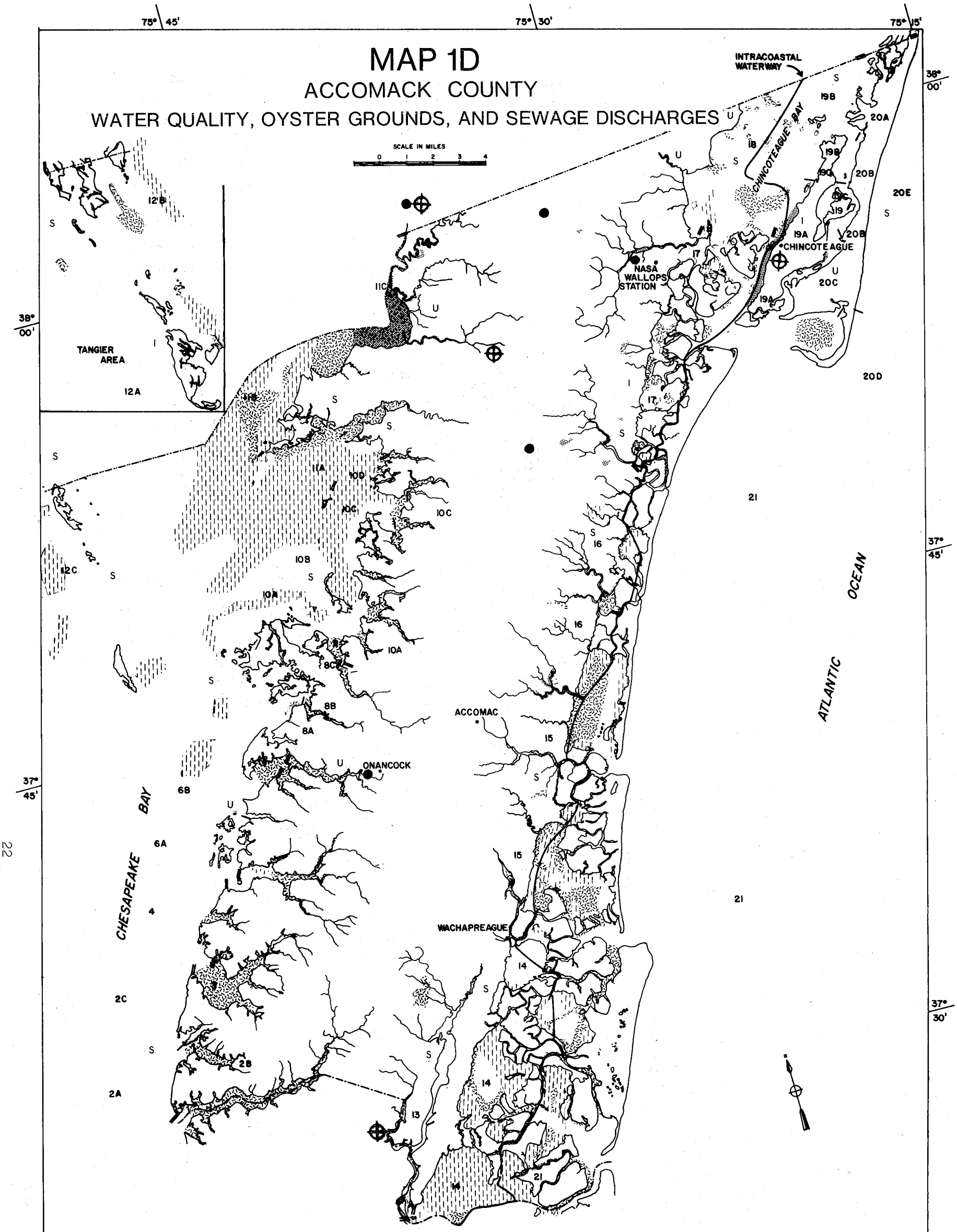
CHINCOTEAGUE

USE		OWNERSHIP	
Agricultural	A	Private	1
Commercial	C	Federal	2
Industrial	I	State	3
Government	G	County	4
Preserved	PR	Town	5
Recreational	RC	City	5
Residential	RS		
Unmanaged			
Unwooded	U	Boat Ramp	
Wooded	W	Marina	

MAP 1D

ACCOMACK COUNTY

WATER QUALITY, OYSTER GROUNDS, AND SEWAGE DISCHARGES



GENERALIZED DELINEATION OF OYSTER GROUNDS

- Public Grounds
- Leased Grounds
- Condemnation Areas

WATER QUALITY

Satisfactory	S
Intermediate	I
Unsatisfactory	U

SEWAGE DISCHARGES

- Domestic ●
- Industrial ⊕

MAP 1E

ACCOMACK COUNTY

SHORELINE EROSION SITUATION

SCALE IN MILES 0 1 2 3 4

75° 45' 75° 30' 75° 15'

38° 00' 37° 45' 37° 30'

INTRACOASTAL WATERWAY

CHINCOTEAGUE BAY

ATLANTIC OCEAN

CHESAPEAKE BAY

TANGIER AREA

NASA WALLOPS STATION

CHINCOTEAGUE

ONANCOCK

ACCOMAC

WACHAPREAGUE

12B 12A 12C 11C 11B 11A 10D 10C 10B 10A 9C 9B 9A 8C 8B 8A 7B 7A 6B 6A 5 4 3 2C 2B 2A 1 20A 20B 20C 20D 20E 19B 19A 19 18 17 16 15 14 13 21

SHORELINE PROTECTION STRUCTURES

Riprap	R
Groins	G
Bulkhead or Seawall	B
Jetties	J
Other	O

EROSION

Severe	
Severe, Critical	
Moderate	
Moderate, Critical	
Slight or No Change	No Symbol
Accretional	+ + + +

TABLE 1. SUMMARY OF ACCOMACK COUNTY SHORELANDS PHYSIOGRAPHY, FASTLAND USE AND OWNERSHIP (STATUTE MILES)

Physiographic, use and ownership classification / Subsegment	SHORELANDS PHYSIOGRAPHY															FASTLAND USE							OWNERSHIP				TOTAL MILES	
	FASTLAND							SHORE					NEARSHORE															
	LOW SHORE	LOW SHORE WITH BLUFF	MODERATELY LOW SHORE	MODERATELY LOW SHORE WITH BLUFF	MODERATELY HIGH SHORE	DUNES	ARTIFICIAL	BEACH	FRINGE MARSH	EMBAYED MARSH	EXTENSIVE MARSH	ARTIFICIALLY STABILIZED	NARROW	INTERMEDIATE	WIDE	AGRICULTURAL	COMMERCIAL	RECREATIONAL	RESIDENTIAL	UNMANAGED	GOVERNMENTAL	PRESERVED	PRIVATE	FEDERAL	STATE	COUNTY	SHORELINE	FASTLAND[2]
1	3.5			3.5					6.6	0.4						6.6	0.2		0.2				7.0				7.0	
2A	3.2							3.2							3.2	0.1				3.1			3.2				3.2	
2B		2.5						0.3	1.8	0.4						2.0				0.5			2.5				2.5	
2C	2.9							2.0		0.1	0.8				2.9	1.4				1.5			2.9				2.9	
3	24.6							0.2	24.4							21.6	0.1		0.4	2.5			24.6				24.6	
4	3.4							1.4			2.0			3.4		1.7				1.7			3.4				3.4	
5	19.0							0.2	17.0	1.8						16.7	0.2	0.2		1.9			19.0				19.0	
6A	1.9							0.1			1.8					0.2				1.7			1.9				1.9	
6B	1.9							0.7	0.7		0.5				1.9	0.8			0.8	0.3			1.9				1.9	
7	24.0							1.2	21.4	1.4						17.5	0.5		2.9	3.1			23.8			0.2	24.0	
8A	2.2					0.2		0.3			2.1			2.4						2.4			2.4				2.4	
8B	6.5							0.3	5.2	1.0						6.4			0.1				6.5				6.5	
8C	18.0							4.7		1.2	12.1				18.0				3.6	14.4			18.0				18.0	
9	6.5								5.1	0.8	0.6					5.4	0.3		0.1	0.7			6.5				6.5	
10A	12.0							1.9	1.2	1.1	7.8				12.0	3.3	0.1		0.2	8.4			12.0				12.0	
10B	15.0							1.0			14.0				15.0					15.0			15.0				15.0	
10C	8.5							0.4		0.3	7.8				8.5					8.5			8.5				8.5	
10D	7.5										7.5				7.5					7.5			7.5				7.5	
11A	10.0									0.1	9.9				10.0	2.0				8.0			10.0				10.0	
11B	19.0							0.8	0.2	0.4	17.6				19.0	5.7				13.3			19.0				19.0	
11C	4.9							0.1		1.3	3.5					3.7				1.2			4.9				4.9	
12A	36.0							5.7	3.3		27.0						7.2		28.8				36.0				36.0	
12B[1]	42.0							2.5			39.5				42.0					42.0			42.0				42.0	
12C	12.8							3.7			9.1				12.8					12.8			12.8				12.8	
13	11.5								5.0	0.4	6.1					2.9		0.3	0.2	8.1			11.5				11.5	
14	12.6							1.6	0.6	0.4	8.8	1.2				10.1	0.7	1.8					12.6				12.6	
15	8.9								0.1	3.2	5.6			3.9	5.0	8.8			0.1				8.9				8.9	
16	10.3								0.1	4.7	5.5			4.1	6.2	7.3			2.0	1.0			10.3				10.3	
17	8.6								0.1	0.3	8.2					2.7	0.2		0.2	1.4	4.1		4.4	4.2			8.6	
18	7.6							1.0	0.6	0.8	5.0	0.2			7.6	3.8	0.8		1.5	1.5			7.6				7.6	
19A	30.1					0.7	0.2	1.3	5.5	0.2	14.8	3.5	4.0				2.5	1.2	27.2		0.1		30.8	0.1	0.1		25.3	31.0
19B	2.3								0.2		6.1									2.3			2.3				6.3	2.3
19C	0.4										6.6									0.4			0.4				6.6	0.4
20A	16.3						0.2		8.5	0.5	12.4											16.5		16.5			21.4	16.5
20B	9.8								4.6	0.2	1.5											9.8		9.8			6.3	9.8
20C	7.8		0.3		0.2		1.0	1.0	2.4		7.8											9.3		9.3			11.2	9.3
20D	5.2					4.8		8.9			1.0		1.0	2.7	1.3			9.7			0.3			10.0			9.9	10.0
20E						11.3		11.3					11.3									11.3		11.3			11.3	11.3
21						40.5		37.8				2.7	16.0	24.5				8.0		13.0	5.5	14.0	19.0	21.5			40.5	
TOTAL	416.7	2.5	0.3	3.5	0.2	57.5	1.4	93.6	114.6	21.0	253.0	7.6	32.3	41.0	172.9	130.7	12.8	21.2	68.3	178.2	10.0	60.9	399.1	82.7	0.1	0.2	489.8	482.1
% of SHORELINE								19.1	23.4	4.3	51.7	1.5	6.6	8.4	35.3												100.0	
% of FASTLAND	86.4	.5	.1	.7	0	11.9	.3									27.1	2.6	4.4	14.2	37.0	2.1	12.6	82.8	17.2	0	0		100.0

[1] 12B (Smith Island) has no fastland.

[2] For segments 1 through 18 and 21 shoreline and fastland measurements were arbitrarily considered identical.
For segments 19 and 20 separate shoreline and fastland measurements were made.

CHAPTER 4

4.1 Table of Subsegment Summaries

4.2 Segment and Subsegment Descriptions

4.3 Segment and Subsegment Maps

4.1 Table of Subsegment Summaries

TABLE 2. SHORELINE SITUATION REPORT SUBSEGMENT SUMMARY FOR ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT	SHORELANDS TYPE	SHORELANDS USE	OWNERSHIP	FLOOD HAZARD	WATER QUALITY	BEACH QUALITY	SHORE EROSION SITUATION				POTENTIAL USE ENHANCEMENT
							RATE	ENDANGERED STRUCTURES	SHORE PROTECTIVE STRUCTURES	SUGGESTED ACTION	
1 OCCOHANNOCK NECK 1,916 acres 7 miles	FASTLAND: Low shore and moderately low shore with 25-foot bluffs. SHORE: Fringe marsh and embayed marsh. CREEK: Submerged meandering; mud bottom; has marked channel.	FASTLAND: Agricultural - 95%, commercial and residential - 5%. SHORE: Some boat landings. CREEK: Shellfishing, boating, and waterfowl hunting.	Private.	High at mouth; low to medium in other parts.	Satisfactory. Previously the headwaters were unsatisfactory.	No beaches.	Slight, noncritical.	None.	None.	None.	Offers good shelter for small craft. Has good possibilities for additional marina facilities. Bluffs offer desirable sites for residences.
2A SCARBOROUGH NECK 17,000 feet	FASTLAND: Low shore, mostly wooded. SHORE: Narrow sand beach backed by extensive marsh and wooded fastland. NEARSHORE: Wide, with sandy bottom.	FASTLAND: Unmanaged, wooded; some agriculture. SHORE: Occasional bathing. NEARSHORE: Fishing.	Private.	High, noncritical.	Satisfactory.	Fair to poor.	Severe, noncritical, 5 ft/yr.	None.	None.	None.	Low potential for residential use. Best use is to remain with agricultural and tree crop production. Could be developed into recreational camping providing no permanent structures are involved.
2B CRADDOCK CREEK 650 acres 2.5 miles	FASTLAND: Low shore with low bluffs. SHORE: Fringe marsh with some embayed marsh and narrow sand beaches. CREEK: Drowned meanders. Bottom muddy; not suited for navigation.	FASTLAND: Agricultural - 80%, unmanaged, wooded - 20%. SHORE: Occasional boat landings and moorings. CREEK: Limited boating and some shellfishing.	Private.	High, noncritical in the northeast; medium, noncritical elsewhere.	Satisfactory.	Poor.	Slight, to none, noncritical.	None.	None.	None.	Should be left as is, primarily agricultural.
2C HYSLOP MARSH 15,500 feet	FASTLAND: Low shore. SHORE: Extensive marsh bordered by wind blown sand flats and dunes. NEARSHORE: Wide with sand waves and parallel, discontinuous sand bars.	FASTLAND: Agricultural - 50%, unmanaged, wooded - 50%. SHORE: Hunting. NEARSHORE: Sport fishing.	Private.	High, noncritical.	Satisfactory.	Good in the middle but inaccessible. Poor at the north and south ends.	Moderate; noncritical, 2 ft/yr.	None.	None.	None.	At present area should be left as it is. To provide access to the beach, an open pile causeway might be constructed across the marsh with consideration to present drainage patterns.
3 NANDUA CREEK 2,360 acres 24.6 miles	FASTLAND: Low shore. SHORE: Primarily fringe marsh with some small sand beaches. CREEK: Submerged meander with dendritic branches; marked channel.	FASTLAND: Agricultural - 88%, unmanaged, wooded - 8%, residential - 2%, unmanaged, open - 2%, commercial - 1%. SHORE: Access to boating, some beach recreation. CREEK: Pleasure and commercial boating, crabbing and fishing.	Private.	High, noncritical at mouth. Medium to low, noncritical elsewhere.	Satisfactory.	Poor.	Moderate, noncritical, 2-3 ft/yr.	None.	At Cedar View there is 400 feet of satisfactory, wooden bulkhead with 3 small groins. Effectiveness of groins was not apparent. 75-foot of wooden bulkhead off Rte. 633 in good condition. 400 feet of satisfactory concrete bulkheading at Nandua.	None.	Undesirable to develope on a commercial scale. At present, area should be left as it is.
4 HACKS NECK 17,700 feet	FASTLAND: Low shore. SHORE: Extensive marsh with irregular shoreline. Marsh is fronted by 6,000 feet of sand beach. NEARSHORE: Intermediate width, very shallow with parallel bars superimposed on sand waves.	FASTLAND: Unmanaged, wooded - 50%, agricultural - 50%. SHORE: Hunting on marshes, bathing at Mason Beach. NEARSHORE: Sport fishing.	Private.	High, noncritical in the shore area. Medium, noncritical in the Hacksneck area.	Satisfactory.	Fair.	Moderate, noncritical. Severe, noncritical in Mason Beach area.	Road ending at the beach may be cut.	Ineffective, scattered, concrete riprap at the end of the road.	None.	Low. The marshes and beaches should be left as they are.
5 PUNGOTEAGUE CREEK 1,085 acres 19 miles	FASTLAND: Low shore. 5-foot rise near mid creek; low bluff to 10 feet on the upper creek. SHORE: Primarily fringe marsh. Some embayed marsh and several small sand beaches. CREEK: Submerged meander pattern with dendritic branches. Nearshore is wide, shallow with multiple sand waves. Nearshore and lower creek bottom is sandy. The rest is muddy.	FASTLAND: Agricultural - 88%, wooded - 10%, commercial - 1%, recreational - 1%. SHORE: Access to boating and bathing. CREEK: Commercial navigation; crab boats and crab floats with sport fishing and pleasure boating.	Private.	High on outer creek; critical to residences. Moderate, noncritical in middle creek, low, noncritical on upper creek.	Satisfactory except at creek head where the taking of shellfish is restricted.	Poor. Narrow, debris-laden, and inaccessible.	Slight, noncritical.	None.	Back-filled pier. At Evans Wharf, the road ending has concrete riprap. A 50-foot length of wood bulkhead. All appear to be effective.	None.	Marina facilities could be amplified with care to avoid pollution. Upper creek might be desirable for low density residential development.

TABLE 2 (CONTINUED) ACCOMACK COUNTY SUBSEGMENT SUMMARY

SUBSEGMENT	SHORELANDS TYPE	SHORELANDS USE	OWNERSHIP	FLOOD HAZARD	WATER QUALITY	BEACH QUALITY	SHORE EROSION SITUATION				POTENTIAL USE ENHANCEMENT
							RATE	ENDANGERED STRUCTURES	SHORE PROTECTIVE STRUCTURES	SUGGESTED ACTION	
6A SLUITKILL NECK 10,200 feet	FASTLAND: Low shore, elevations generally less than 10 feet. SHORE: Extensive marsh. Shore area of islands is 94% marsh, 6% sand. NEARSHORE: Extremely wide. Slopes are gentle, and sand waves and bars occur without any particular orientation.	FASTLAND: Unmanaged, wooded - 90%, scattered agricultural - 10%. SHORE: Waterfowl hunting on the marsh, shellfishing in the tidal zones. NEARSHORE: Sport fishing.	Private.	High, noncritical.	Satisfactory.	Fair to good on the bay side of the islands but inaccessible to general public.	Severe, critical on bay shores, moderate, noncritical on the mainland.	One building near the north end of Parkers Island may be lost.	None.	Not economically feasible.	Minimal. Not suitable for either residential or recreational development due to low elevations and high flood hazard.
6B BROADWAY NECK 10,000 feet	FASTLAND: Low shore, dissected by small creeks. 5-foot contour about 0.6 mile from bay shore. SHORE: Extensive marsh in southern fourth, sand beach and fringe marsh in northern three-fourths. NEARSHORE: Wide, shallow with irregular shoals and winding channels. Bottom is sandy.	FASTLAND: Unmanaged, wooded - 60%, residential backed by agriculture - 40%. SHORE: Beach recreation, access to boats, waterfowl hunting in marsh areas. NEARSHORE: Channel access to Onancock Creek, sport fishing, shellfishing.	Private.	High, critical.	Unsatisfactory.	Fair. Medium width beaches at Broadway Landing but cluttered with ineffective groins. Small, inaccessible beaches elsewhere.	Moderate, 2 ft/yr.	Road extending to the beach at East Point.	At Broadway Landing a 300 foot earthen dike, with concrete block seawall in front. In front of wall are 28 groins. 100 feet northeast of concrete block is a plank bulkhead with 2 large groins. All structures are ineffective.	Well designed seawall and groins could be installed with proper coastal engineering advise.	Replacement of existing beach defenses will improve presently developed areas. High flood hazard should be considered before future development.
7 ONANCOCK CREEK 950 acres	FASTLAND: Low shore, elevations 8 feet or less, upper creek 10 to 15-foot bluff. SHORE: Fringe marsh - 89%, embayed marsh - 6%, narrow sand beach - 5%. CREEK: Submerged meanders with dendritic branches.	FASTLAND: Agricultural - 73%, unmanaged, wooded - 13%, residential - 12%, commercial - 2%. SHORE: Access to boats and moorings, some dockage. CREEK: Commercial and pleasure boating, some fishing and shellfishing.	Private - 99%, Public - 1%.	High in lower creek, medium in Cedar Creek and at Finneys Wharf. Low in upper creek.	Satisfactory except for Parkers Creek and 440 acres of Onancock Creek which are unsatisfactory.	Poor. Natural beaches are thin, narrow and inaccessible.	Moderate, noncritical.	None.	About 400 feet of rubble riprap around the point at Finneys Wharf, and 200 feet along bayside of the point at Poplar Cove. These appear effective. About 4,180 feet of bulkhead at 5 locations has been constructed to hold fill. These are in fair to good condition.	None.	Minimal. Flood hazard for lower creek recommends against additional development. Upper creek could support additional low-density residential development. Increased boating activity would increase danger of water pollution.
8A PARKERS MARSH 12,500 feet	FASTLAND: Low shore with a very gentle slope. SHORE: Extensive marsh and peat front - 86%, sand beach - 14%. NEARSHORE: Intermediate width at mouth of creeks. Wide at center of subsegment.	FASTLAND: Unmanaged, wooded - 99%, residential - 1%. SHORE: Beach recreation at Crystal Beach. Hunting north of Back Creek and wildlife refuge on Parkers Marsh. NEARSHORE: Boating, sport fishing.	Private.	High, noncritical except for the vacation community at Crystal Beach which is below the 5-foot contour.	Satisfactory.	Fair in sand beach areas, poor elsewhere.	Severe to none, noncritical.	None.	None.	Study of area with a comprehensive erosion control system.	It would be desirable to preserve marshes for their natural purposes, and not to extensively develope the Crystal Beach area.
8B CHESCONESSEX CREEK 240 acres 6.5 miles	FASTLAND: Low shore, elevations generally above 5 feet. SHORE: Fringe marsh - 80%, embayed marsh - 15%, narrow sand beach - 5%. CREEK: Submerged meander with dendritic tributary pattern. Bottom is soft.	FASTLAND: Agricultural - 99%, commercial and residential - 1%. SHORE: Access to boats and moorings, wharf crossings, crab float storage, boat ramps and railways. CREEK: Crabbing industry, minor amount of pleasure boating.	Private.	Medium, critical due to storm surge from bay.	Satisfactory.	Poor. 5% of creek is narrow, actively eroding, debris laden sand beach.	Slight, noncritical.	None.	One 100-foot long wooden bulkhead and two, 50-foot long, cement block bulkheads all located on the north side of creek. They are effective in retaining fill.	None.	Low. Land is too low to advise residential development and the creek is not suitable for yachting traffic.
8C BIG MARSH 2,545 acres 95.000 feet	FASTLAND: Low shore, 5-foot contour is $\frac{1}{2}$ mile or more inland. SHORE: Extensive marsh, embayed marsh, about 25,000 feet of sand beach. NEARSHORE: Wide, shallow, sandy bottom except muddy in restricted basin.	FASTLAND: Unmanaged, wooded - 80%, residential at Factory Point - 20%. SHORE: Residential development, hunting, limited beach recreation. NEARSHORE: Sport fishing, commercial fishing, shellfishing, boat access.	Private.	High, critical at Factory Point, due to storm surge from bay. Buildings only 3 or 4 feet above MSL.	Satisfactory.	Fair to good but almost totally inaccessible to general public.	Moderate, could be critical during storm surge.	None.	None.	None, any action would be economically infeasible.	Minimal. Development is inadvisable due to low elevation and flood hazard. Marshes should be left as they are.

TABLE 2 (CONTINUED) ACCOMACK COUNTY SUBSEGMENT SUMMARY

SUBSEGMENT	SHORELANDS TYPE	SHORELANDS USE	OWNERSHIP	FLOOD HAZARD	WATER QUALITY	BEACH QUALITY	SHORE EROSION SITUATION				POTENTIAL USE ENHANCEMENT
							RATE	ENDANGERED STRUCTURES	SHORE PROTECTIVE STRUCTURES	SUGGESTED ACTION	
9 DEEP CREEK 520 acres 6½ miles	FASTLAND: Low shore. Lower creek is below 10 feet, upper creek slopes are steeper and rise to 15 feet. SHORE: Extensive and fringe marsh - 77%, embayed marsh - 13%. Less than 100 feet of sand beach. CREEK: Submerged meanders, quite shallow.	FASTLAND: Agricultural - 83%, unmanaged, wooded - 6%, unmanaged, open - 5%, commercial - 5%, residential - 1%. SHORE: Access to boats, piers and moorings, pound net fishing, crab float storage. CREEK: Port for crabbing industry, some yachting and pound net fishing.	Private.	High, critical due to storm surge. Residences at Deep Creek have elevations of less than 5 feet.	Satisfactory except for some unsatisfactory portions at Hunting and Deep Creeks.	Poor.	Slight to none, noncritical.	None.	500 feet of wooden bulkheading, retaining fill. 150 feet of this is in deteriorating condition, remainder appears effective.	None.	Low. Limited areal extent, shallow depth of the creek, and low elevation of surrounding fastland, prohibit increased marine facilities or residential development.
10A WEBB ISLAND 12 miles	FASTLAND: Low shore with gentle slope. SHORE: Extensive marsh with some embayed marsh at mouth of creeks and fringe marsh in the nearshore zone. About 9,000 feet of sand beach. NEARSHORE: Wide, nearshore bottom is generally hard sand; creeks are shallow and muddy.	FASTLAND: Unmanaged, wooded - 70%, agricultural - 27%, residential - 2%, and commercial - 1%. SHORE: Hunting in the marshes. Boat access and storage on the creeks. NEARSHORE: Sport fishing, commercial shellfishing, boat traffic.	Private.	High, critical at Hopkins where homes are below the 5-foot contour, noncritical elsewhere.	Satisfactory.	Good except accessible only by small boat.	Slight to none, noncritical.	None.	3 groin-like structures, 3 areas of cosmetic bulkheading, and an earthen and rubble riprapped dike. All appear effective in retaining fill.	None.	Low. Due to low elevation, residential development is not recommended. Lumber production and agriculture on the fastland appears to be the best use.
10B PARKSLEY 15 miles	FASTLAND: Low shore, very gently sloping. SHORE: Extensive marsh - 99%, embayed marsh - 1%, 5,500 feet of scattered sand beach. NEARSHORE: Wide with sand and mud bottom. The creeks are well marked, shallow, and have a muddy bottom.	FASTLAND: Unmanaged, wooded, agricultural behind. SHORE: Hunting on the marsh, boat landings. NEARSHORE: Sport fishing, shellfishing, minor boat traffic.	Private.	High, noncritical.	Satisfactory.	Fair. Medium width, good white sand, but inaccessible.	Slight to moderate, noncritical, 2 ft/yr.	Possible 3 or 4 hunting camps.	150-foot bulkhead at dredged boat basin, 100 feet of wooden bulkhead at end 676. Both effective in protecting against slumping.	None.	Low. Marshland should be preserved. Fastland could be suitable for lumber and agriculture.
10C GUILFORD CREEK 8½ miles	FASTLAND: Low shore. SHORE: Extensive marsh - 96%, embayed marsh - 4%, 2,000 feet of sand beach. NEARSHORE: Wide, shallow with a 7 to 10-foot channel.	FASTLAND: Unmanaged, wooded, agricultural behind. SHORE: Hunting on marsh, boat landings. NEARSHORE: Sport fishing, shellfishing, boat traffic.	Private.	High, noncritical.	Satisfactory.	Fair.	Slight to none, noncritical.	Road at Guard Shore.	At end of 675 there is 50 feet of riprap and 400 feet of bulkhead running east of the road. These are fairly effective. 600 feet of effective riprap at Guard Shore. At Old Cove there is 50 feet of bulkhead holding sand. There are 50 feet of bulkhead on Muddy Creek.	Bulkhead at Guard Shore should be replaced with a more substantial bulkhead. The bulkhead at Old Cove should be repaired.	Low. Marsh should be left as it is. Improvements could be made at Guard Shore for more extensive recreation.
10D BYRDS MARSH 7½ miles	FASTLAND: Low shore. SHORE: Extensive marsh. Medium to narrow beaches on islands. NEARSHORE: Wide, shallow and sandy.	FASTLAND: Unmanaged, wooded. SHORE: Hunting, fishing, boating. NEARSHORE: Sport fishing, shellfishing.	Private.	High, noncritical.	Satisfactory.	None on mainland. On Bernard Island beaches are fair to good but inaccessible.	Slight to none, noncritical, except moderate, noncritical for portions of Byrds Marsh.	None.	None.	None.	Low. Area should be left as it is.
11A MICHAEL MARSH 10 miles	FASTLAND: Low shore. SHORE: Extensive marsh - 99%, embayed marsh - 1%, 500 feet of sand beach. NEARSHORE: Wide with 8-foot natural channels. Deep spots are muddy, shoals are hard sand.	FASTLAND: Unmanaged, wooded - 80%, agricultural - 20%. SHORE: Wildlife sanctuary. NEARSHORE: Sport fishing, shellfishing, minor boat traffic.	Private.	High, noncritical.	Satisfactory.	Poor. Thin, narrow, inaccessible, sand beaches.	Moderate, noncritical. 1.3-1.7 ft/yr.	None.	None.	None.	Low. Saxis Wildlife Management area uses most of the marsh. The adjacent fastland is suitable for timber production.

TABLE 2 (CONTINUED) ACCOMACK COUNTY SUBSEGMENT SUMMARY

SUBSEGMENT	SHORELANDS TYPE	SHORELANDS USE	OWNERSHIP	FLOOD HAZARD	WATER QUALITY	BEACH QUALITY	SHORE EROSION SITUATION				POTENTIAL USE ENHANCEMENT
							RATE	ENDANGERED STRUCTURES	SHORE PROTECTIVE STRUCTURES	SUGGESTED ACTION	
11B FREESCHOOL MARSH 19 miles	FASTLAND: Low shore. SHORE: Extensive marsh - 87%, embayed marsh - 2%, fringe marsh - 1%, isolated fastland - 6%, sand areas - 4%. NEARSHORE: Wide. Bottom is hard sand or shell except embayments are muddy.	FASTLAND: Unmanaged, wooded - 69%, agricultural - 29%. On Saxis Island, commercial - 10%, residential - 4%. SHORE: Wildlife management - 80%, access to boats, shore recreation, shellfish industry. NEARSHORE: Fishing, shellfishing, boating.	Private.	Medium, critical in Saxis area. High, critical at north end of town and to the marshes.	Satisfactory.	Fair in the vicinity of Long Point. Poor elsewhere.	Moderate to severe, noncritical, except at North End Point and Starling Creek.	House at North End Point and camp at east side of Starling Creek.	There are numerous shore protective structures in this subsegment. They consist of riprap, groins, and plank and pile bulkheads. Most of the structures are effective but many could be improved.	Detailed study is needed to look at overall solution rather than stopgap measures.	Low. Camping facilities could be increased in northeast part. Also, an increase in yachting trade at Saxis. Every effort should be made to prevent additional encroachment upon the marshes.
11C JOLLEYS NECK 26,000 feet	FASTLAND: Low shore penetrated by creeks 5-foot contour near marsh edge. SHORE: Extensive marsh with fastland islands - 72%, embayed marsh - 28%, fringe marsh - 1%, 500 feet of narrow sand beach. NEARSHORE: Pocomoke Sound to west of lower half. Pocomoke River borders upper half. The bottom is all shallow and muddy.	FASTLAND: Agricultural - 75%, unmanaged, wooded - 25%. SHORE: Hunting, shellfishing, access to boats. NEARSHORE: Some fishing, boat traffic.	Private.	High, noncritical over marshes. Medium, noncritical elsewhere.	Unsatisfactory.	Poor. Isolated sand pockets, occur back of tidal flat and are inaccessible.	Slight to none, noncritical.	None.	100 feet of plank bulkhead on Holdens Creek. 50 feet of riprap and 30 feet of bulkhead on Pitts Neck. All structures appear adequate.	None.	Low. Agriculture appears best use for present.
12A TANGIER ISLAND 1,135 acres 36 miles	FASTLAND: Low shore. SHORE: Extensive marsh - 75%, sand beach - 15%, fringe marsh - 10%. NEARSHORE: Wide except the east side which is intermediate width.	FASTLAND: Residential - 80%, commercial - 20%. SHORE: Crabbing, commercial boating, hunting, fishing. NEARSHORE: Sport fishing, shellfishing, crabbing, boat traffic.	Private.	Medium, critical except for uninhabited marshes which are noncritical.	Unsatisfactory due to direct sewage discharge.	Poor along Tangier. They are narrow and thin. Good at Cod Harbor but inaccessible.	Slight to severe, critical.	Airstrip and approximately one dozen residences.	2,500 feet of bulkhead at Harbor area of Tangier. 200-foot combination pier and jetty and 450-foot bulkhead around entrance to lagoon at East Point Marsh. All structures appear effective.	Immediate studies are needed. Riprapping or bulkheading of west side of Tangier is needed.	Low. Due to high erosion rate, no steps should be taken until the erosion problem is eleviated. Possible increase in marina facilities.
12B SMITH ISLAND 917 acres 42 miles	FASTLAND: None. SHORE: Extensive marsh - 94%, sand areas - 6%. NEARSHORE: Wide, generally sandy or gravelly sand bottom.	FASTLAND: None. SHORE: Waterfowl hunting. NEARSHORE: Sport fishing.	Private.	High, noncritical.	Satisfactory.	Poor to good, but none are accessible to general public.	Moderate to severe, noncritical. 2-4 ft/yr.	None.	None.	None.	Low. The area is too low for any kind of development.
12C WATTS AND FOX ISLANDS 12.8 miles	FASTLAND: Low shore, only on Watts Island. SHORE: Extensive marsh - 71%, sand areas - 29%. NEARSHORE: Wide, generally less than 6 feet in south, 4 feet in north. Shoaler areas are sand and gravelly.	FASTLAND: Unmanaged, wooded. SHORE: Mostly unused, some fishing and hunting. NEARSHORE: Sport fishing.	Private.	Medium, noncritical.	Satisfactory.	Fair to poor. All are thin, narrow, and inaccessible.	Moderate to severe, noncritical.	None.	None.	None.	Low. At present, it is recommended that no exploitation or development be considered.
13 MACHIPONGO RIVER 11½ miles	FASTLAND: Low shore. Mainland side slopes to 15 feet. Beyond 1 mile, terraces 25-30 feet. SHORE: Extensive, fringe, and embayed marsh, about 200 feet of sand beach. NEARSHORE: Upper Parting Creek is shallow and muddy. Machipongo River is wide and deep.	FASTLAND: Unmanaged, wooded - 70%, agricultural - 25%, recreational - 3%, residential - 2%. SHORE: Beach recreation, boating, waterfowl hunting. NEARSHORE: Boat traffic, shellfishing.	Private.	Medium to low, noncritical.	Satisfactory.	Poor. Only 200 feet of medium to narrow width beach.	Slight to none, noncritical.	None.	50 feet of poorly constructed bulkhead a mile south of Quinby. 75 feet of flimsy bulkhead at Machipongo shores. At Quinby Bridge there is about 600 feet of riprap.	None except to repair already existing bulkheads.	Low. As most of the shore is marsh, little can be done to increase shore use without unacceptable damage to the marsh.

TABLE 2 (CONTINUED) ACCOMACK COUNTY SUBSEGMENT SUMMARY

SUBSEGMENT	SHORELANDS TYPE	SHORELANDS USE	OWNERSHIP	FLOOD HAZARD	WATER QUALITY	BEACH QUALITY	SHORE EROSION SITUATION				POTENTIAL USE ENHANCEMENT
							RATE	ENDANGERED STRUCTURES	SHORE PROTECTIVE STRUCTURES	SUGGESTED ACTION	
14 QUINBY 66,500 feet	FASTLAND: Low shore. 5-foot contour within a few score feet. SHORE: Extensive and fringe marsh, sand beach, artificial shoreline. NEARSHORE: Mud flats, exposed at low water, channels as deep as 25 feet. Nearshore areas are irregular.	FASTLAND: Agricultural - 80%, recreational - 14%, commercial - 6%. SHORE: Boat access, waterfowl hunting, shore recreation. NEARSHORE: Boating, fishing, shellfishing.	Private.	High, critical.	Generally satisfactory, except for a few isolated restricted areas.	Poor. Narrow, thin and strewn with stumps.	None to slight, noncritical.	None.	Around and in Quinby Harbor there is about 1,470 feet of bulkhead. Along Wachapreague, there is about 2,500 feet of wooden bulkhead. Most are in fair to good condition. Short timber jetties protect entrance to the 2 marinas. North of Wachapreague, 150 feet of riprap protects the shore.	General maintenance of bulkheads. Artificial nourishment and short groins could enhance the beach at Upshur Neck.	Low. Better maintenance of marinas would make harbors more attractive. The lack of available waterfront and good beaches hampers additional development.
15 BURTONS BAY 46,900 feet	FASTLAND: Low shore. 20-foot contour generally more than a mile inland. SHORE: Extensive marsh - 63%, embayed marsh - 36%, fringe marsh - 1%, scattered reaches of narrow beach. NEARSHORE: Intermediate to wide, shallow bay with mud bottoms.	FASTLAND: Agricultural - 99%, residential - 1%. SHORE: Hunting, access for boating, some beach recreation, spoil dumping. NEARSHORE: Sport fishing, shellfishing, boat traffic.	Private.	High, noncritical.	Satisfactory.	Poor. Beaches are narrow and covered with stumps.	None to slight, noncritical.	None.	Ineffective brick and block revetment at Folly Creek Landing, a plank bulkhead at Burtons Shore. At Edgewater there are 100-foot of concrete seawall and 300 feet of concrete riprap. Riprap on each side of route 647. All structures appear effective.	None.	Low. Suited to its present uses such as agriculture, hunting, and fishing. Every attempt should be made to maintain marshes in their natural state.
16 GARGATHY 54,600 feet	FASTLAND: Low shore, gently sloping, penetrated by creeks. SHORE: Extensive marsh - 53%, embayed marsh - 46%, fringe marsh - 1%. NEARSHORE: Bays constitute nearshore. They are intermediate to wide, shallow, with tidal mud flats.	FASTLAND: Agricultural - 71%, residential - 19%, unmanaged, wooded - 10%. SHORE: Access for boating, waterfowl hunting. NEARSHORE: Boat traffic, fishing, shellfishing.	Private.	High, noncritical in shore areas. Medium, to boating facilities on middle and lower sections, low to residences.	Satisfactory.	No beaches.	None.	None.	200 feet of concrete and block retaining wall along the bank of Garthy Creek. Inside a dug basin there is 50 feet of concrete wall and 200 feet of well maintained wooden bulkhead. These structures are primarily cosmetic.	None.	Moderate. Marshes should be left as they are. Upland elevations offer potential for low density residential development. Lack of beaches limits potential for shore recreation.
17 POWELLS BAY 45,300 feet	FASTLAND: Mostly low shore, except moderately low shore along Mosquito Creek. SHORE: Extensive marsh - 95%, embayed marsh - 4%, fringe marsh - 1%. NEARSHORE: Shallow, irregular bays between fastland and marsh.	FASTLAND: Government - 49%, agricultural - 31%, unmanaged, open - 9%, unmanaged, wooded - 7%, residential - 2%, commercial - 2%. SHORE: Hunting, shellfishing, spoil dumping.	Private - 51%, government - 49%.	Low, noncritical to most of segment. Medium, critical along the immediate shore-fastland area. High, noncritical on marshes.	Generally satisfactory, some isolated condemned areas.	No beaches.	None to slight, noncritical.	None.	900-foot bulkhead at Wishart Point, 300 feet in very poor condition. 200 feet of concrete rubble riprap along Route 695. Riprap and bulkhead along Route 175. Most of the structures are fairly effective.	None, except repair bulkhead at Wishart Point.	Low. Potential for low-density residences on fastland above the 10-foot contour. Marshes should be left as they are.
18 CHINCOTEAGUE BAY 40,000 feet	FASTLAND: Low shore and moderately low shore with bluff. SHORE: Extensive, embayed, and fringe marsh, 4,800 feet of sand beach, 1,000 feet of artificial retainment. NEARSHORE: Wide, shallow, with muddy bottom. Shoal areas contain oyster "rocks".	FASTLAND: Agricultural - 50%, commercial - 10%, residential - 20%, unmanaged, wooded - 20%. SHORE: Boat access, storage and mooring, hunting, beach recreation. NEARSHORE: Boat traffic, water sports, sport fishing, shellfishing.	Private.	High, critical in Greenbackville and Cockle Point areas. High, noncritical over the marshes. Low, noncritical elsewhere.	Generally satisfactory, some isolated condemned areas.	Fair to poor.	Slight to severe, noncritical.	None.	There are many bulkheaded and riprapped areas in this segment. There are also some groins and also an area of gabions. Most of the structures are fairly effective.	Repair bulkheads and place additional bulkheads where needed. Groins and artificial nourishment are needed to maintain a beach at Captains Cove.	Moderate. Winders Neck offers some possibility for residential development. Marshes should be left in their natural state.

TABLE 2 (CONTINUED) ACCOMACK COUNTY SUBSEGMENT SUMMARY

SUBSEGMENT	SHORELANDS TYPE	SHORELANDS USE	OWNERSHIP	FLOOD HAZARD	WATER QUALITY	BEACH QUALITY	SHORE EROSION SITUATION				POTENTIAL USE ENHANCEMENT
							RATE	ENDANGERED STRUCTURES	SHORE PROTECTIVE STRUCTURES	SUGGESTED ACTION	
19A CHINCOTEAGUE ISLAND 25.3 miles (31.0 miles of fastland)	FASTLAND: Low shore 97%, low shore with dunes 2%, artificial 1%. SHORE: Extensive marsh 58%, fringe marsh 22%, artificially stabilized 14%, beach 5%, embayed marsh 1%. NEARSHORE: Narrow 16% along The Canal and Chincoteague Channel. Assateague Channel is shallow with tidal flats, oyster rocks.	FASTLAND: Residential 88%, commercial 8%, recreational (campgrounds) 4%, governmental (Coast Guard Station) <1%. SHORE: Commercial, recreational, none. NEARSHORE: Shellfishing, fishing.	Private 99%, Federal <1%, State <1%.	High, critical, elevation 5-10 feet, predominantly less than 10 feet, most of the fastland is extensively developed.	Intermediate in Chincoteague Channel in May 1974. Unsatisfactory in Assateague Channel in June 1974.	Poor.	Severe, noncritical on Chincoteague Point and The Canal. Moderate, noncritical above Black Point Landing on Assateague Channel.	Possibly buildings at the southern end of Route 2114.	Bulkheading and riprap along the town of Chincoteague waterfront, at Black Point Landing and on the northeast shore of Piney Island. The riprap on Piney Island consists of discarded automobiles. Wooden bulkheading at Birch Town and in the Oyster Bay development.	None.	Low, most of shoreline is developed; there are no desirable beaches.
19B WILDCAT MARSH 6.3 miles (2.3 miles of fastland)	FASTLAND: Low shore. SHORE: Extensive marsh 97%, fringe marsh 3%. NEARSHORE: Shallow, soft muddy bottom, with oyster rocks; 5-13 foot channel in Assateague Bay.	FASTLAND: Unmanaged, wooded. SHORE: Hunting. NEARSHORE: Shellfishing, fishing, waterfowl hunting.	Private.	High, noncritical.	Satisfactory.	No beaches.	Slight to none.	None.	None.	None.	None.
19C MORRIS ISLAND 6.6 miles (0.4 miles of fastland)	FASTLAND: Low shore. SHORE: Extensive marsh. NEARSHORE: Shallow, muddy bottom with oyster rocks.	FASTLAND: Unmanaged, wooded. SHORE: Hunting. NEARSHORE: Shellfishing, waterfowl hunting.	Private.	High, noncritical.	No data.	No beaches.	Slight to none.	None.	None.	None.	None.
20A CALFPEN BAY 21.4 miles (16.5 miles of fastland)	FASTLAND: Low shore 99%, artificial earth dams on pond behind Ragged Point Marshes 1%. SHORE: Extensive marsh 58%, fringe marsh 40%, embayed marsh 2%. NEARSHORE: Shallow with 4-6 foot deep channel west of Ragged Point Marshes.	FASTLAND: Preserved (Wildlife Refuge), some hunting. SHORE: Preserved, some hunting. NEARSHORE: Some shellfishing, fishing.	Federal.	High, noncritical except to very few scattered residences.	Satisfactory.	No beaches.	Slight to none.	None.	None.	None.	Low, use is under jurisdiction of Bureau of Sport Fisheries and Wildlife.
20B ASSATEAGUE BAY 6.3 miles (9.8 miles of fastland)	FASTLAND: Low shore. SHORE: Fringe marsh 73%, extensive marsh 24%, embayed marsh 3%. NEARSHORE: Shallow with tidal flats and oyster rocks and 3-13 foot channel.	FASTLAND: Preserved (Wildlife Refuge), some hunting. SHORE: Preserved, some hunting. NEARSHORE: Shellfishing, fishing.	Federal.	Medium along Assateague Bay where 5-10 foot dike is maintained; high, noncritical along remainder of segment.	No data.	No beaches.	Slight to none.	None.	None.	None.	Low, use is under jurisdiction of Bureau of Sport Fisheries and Wildlife.
20C BLACK DUCK MARSH 11.2 miles (9.3 miles of fastland)	FASTLAND: Low shore 84%, artificial 11%, moderately low shore 3%, moderately high shore 2%. SHORE: Extensive marsh 70%, fringe marsh 21%, beach 9%. NEARSHORE: Assateague Channel 7-19 feet, tidal flats; Toms Cove up to 11 feet, tidal flats.	FASTLAND: Preserved (Wildlife Refuge), birdwatching, some hunting. SHORE: Preserved, some hunting, shellfishing. NEARSHORE: Fishing, shellfishing.	Federal.	Low along Assateague Channel; high, noncritical on Black Duck Marsh.	Unsatisfactory along Assateague Channel in June 1974.	Fair to poor, on either side of bridge from Chincoteague.	Severe, noncritical on Assateague Point.	None.	None.	None.	Low, use is under jurisdiction of Bureau of Sport Fisheries and Wildlife.
20D FISHING POINT 9.9 miles (10.0 miles of fastland)	FASTLAND: Low shore 52%, low shore with dunes 48%. SHORE: Beach 90%, extensive marsh 10%. NEARSHORE: Toms Cove up to 11 feet deep, tidal flats, muddy bottom; ocean side narrow to wide, sandy bottom.	FASTLAND: Recreational (National Seashore) 97%, governmental (abandoned Coast Guard Station) 3%. SHORE: Beach recreation. NEARSHORE: Shellfishing, fishing.	Federal.	High, noncritical; low to medium at abandoned Coast Guard Station.	No data.	Excellent. Wide, clean sand beach.	Accretion. Hook has built south and west approximately 5 miles since 1859.	None.	Sand fence north from the elbow of the hook has caused the dunes to build up.	None.	Low, use is under jurisdiction of National Park Service.
20E ASSATEAGUE ISLAND, OCEAN SIDE 11.3 miles (11.3 miles of fastland)	FASTLAND: Low shore with dunes. SHORE: Wide sand beach. NEARSHORE: Narrow width, sandy bottom.	FASTLAND: Preserved (Wildlife Refuge), hunting. SHORE: Surf-fishing. NEARSHORE: Fishing.	Federal.	Low, sand fence maintained.	Satisfactory as of January 1974.	Excellent. Wide, clean sand beach.	Relatively stable.	None.	Sand fence has built up dunes.	None.	Low, use is under jurisdiction of Bureau of Sport Fisheries and Wildlife.

4.2 Segment and Subsegment Descriptions

OCCOHANNOCK CREEK, ACCOMACK AND
NORTHAMPTON COUNTIES, VIRGINIA
SEGMENT 1 (Maps 2)

EXTENT: Area - 1,916 acres including Killmon Cove.
Length - 7 miles from the inlet to the head of the creek.

SHORELANDS TYPE
FASTLAND: Low shore on both sides of the lower half; moderately low shore on the upper half of the creek with 25-foot bluffs rising from the marsh edge.
SHORE: Fringe marsh (45 acres) and embayed marsh at the heads of the creek branches (106 acres).
CREEK: Submerged meander valley with a few tributaries, mostly near the inlet. The bottom is primarily mud.

SHORELANDS USE
FASTLAND: About 95% agricultural, 5% commercial and residential.
SHORE: Little used except for boat landings (piers, ramps, and moorings).
CREEK: Shellfishing (there are 96 leased oyster tracts comprising 790 acres), boating, and some waterfowl hunting.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High in the lower part of the creek, medium in the upper creek, due to possibility of storm surge from the bay. Low to the bluff area surrounding the upper creek. Most structures are above 5 feet in elevation.

WATER QUALITY: Satisfactory in 1973, but previously the upper creek had been unsatisfactory and closed to the taking of shellfish for direct sale to the consumer.

SHORE EROSION SITUATION
EROSION RATE: Very little erosion in the creek. There was about 40 acres of marsh erosion in various locations along the south side of the creek between 1851 and 1942, and probably a similar amount on the north side, but there was also comparable accretion at other locations. A breakthrough has occurred recently in the spit north of Powells Bluff (Photo AC-1-4G) but is not likely to affect the creek channel. No structures are threatened nor isolated by the break.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None at present.

OTHER SHORE STRUCTURES: There are approximately 20 wharves on the creek and two boat ramps. A fixed road bridge (Rte. 178) crosses the creek near its upper end.

NAVIGABILITY
APPROACHES: A marked channel with minimum depths of 7 feet crosses the nearshore area. There are many shoals and bars, and the channel is narrow and winding, but with proper attention to the navigation aids, the Occohannock Creek approaches are easily navigable.
INLET: The north spit at the entrance to the creek has grown southward and inward considerably in 30 years, but the channel appears to have remained in about the same position.
CREEK: The channel is marked by day beacons for about half the length of the creek (3 mi.), to the vicinity of Davis Wharf. The controlling depth is about 5 feet. There are various shoals off the points along the creek, but even beyond Davis Wharf, to the bridge near Rue Wharf, at least 3 feet, and generally 4 feet can be expected along the center of the creek.

POTENTIAL USE ENHANCEMENT: Occohannock Creek offers the first good shelter for small craft north of the Cape Charles Harbor area. While care should be taken to avoid further contamination of the creek waters, the creek morphology offers the capability for additional marina facilities. There are several sheltered sites where such facilities might be placed, such as Tawes Creek, Johnson Cove, Concord Wharf area, or Scarborough Gut.

As with other creeks in the region, the bluffs overlooking the creek offer desirable sites for residences, either permanent or seasonal. Occohannock Creek is particularly attractive as it also offers extensive boating possibilities.

MAPS: USGS, 7.5 Min.Ser. (Topo.), JAMESVILLE and EXMORE Quadrs., 1943 and 1968.
C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY, Wolf Trap to Pungoteague Creek, 1971.

PHOTOS: Aerial-VIMS 100ct72 NH-18-91 to 93, AC-1-1 to 5;
VIMS 18Dec72 AC-1-6 to 28, NH-18-227;
VIMS 27Dec72 NH-18-471, 472.

Ground - VIMS 13Sep73 AC-1-1G to 4G.

SCARBOROUGH NECK, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 2A (Maps 2)

EXTENT: 17,000 feet (3.2 mi.), from Powells Bluff at the entrance to Occohannock Creek to the marshy point at the entrance to Craddock Creek.

SHORELANDS TYPE

FASTLAND: Low shore, mostly wooded, penetrated near its northern limit by Bull Cove, which, with its three arms, extends about 0.7 miles inland and has an area of 54 acres. Two or three other ponds to the south were apparently old reentrants now cut off from the bay by dunes.

SHORE: From south to north, there are a sand spit, a narrow sand beach backed by extensive marsh, and a narrow sand beach backed by wooded fastland with cut-off reentrants and a cove. The spit (Powells Bluff) is 1,500 feet long with a maximum width of about 250 feet. The narrow sand beach backed by marsh extends north from the spit base for about 6,500 feet, with a broken line of dunes directly behind the beach and then a width of marsh averaging about 1,200 feet. A levee and associated borrow ditch extends across the southerly end of the marsh to provide access to an area on the bay shore formerly used as a private beach. The narrow beach backed by fastland fronting the northerly half of the subsegment (about 9,000 ft.) has a nearly continuous duneline with elevations about 5 feet, immediately behind.

NEARSHORE: Wide (averaging 1,300 yds.), with multiple parallel sand bars. There are depths of only three feet or less over about half of its width. The bottom is primarily sandy.

SHORELANDS USE

FASTLAND: Unmanaged, wooded, some agricultural.

SHORE: Occasional bathing and other recreational activity.

NEARSHORE: Fishing.

OFFSHORE BOTTOM: Gently sloping to a low of about 45 feet approximately 4,800 yards off the beach. The bottom is primarily muddy-sand.

WIND AND SEA EXPOSURE: The beaches trend NNE - SSW. The fetch from the NNW is over 40 miles, from the WNW is 19 miles, and from the WSW is 16 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical. Over two-thirds of the area within one-half mile of the beach is lower than five feet, and within a mile of the bay shore; there are only two isolated points at Cape Charles reaching eight feet, the Intermediate Regional Flood level. The few buildings within the subsegment are mostly above the 5-foot contour.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Fair to poor. The beach is narrow, thin, and at present is inaccessible to the public.

SHORE EROSION SITUATION

EROSION RATE: Severe, noncritical. The VIMS historical study indicates an erosion rate of approximately 5 feet per year.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None at present. To deal effectively with erosion in this subsegment, a system of defenses should be designed to cover the entire length of the shore. Expense of such a project at this place is prohibitive at present.

OTHER SHORE STRUCTURES: There is a road across the marsh.

POTENTIAL USE ENHANCEMENT: Low, primarily due to the high flood hazard and secondarily to the expense involved in constructing effective shore erosion defenses. Best use for the forseeable future appears to remain in agriculture and tree crop production. Recreational camping, particularly in the Bull Cove area, may be developed to advantage, provided no substantial permanent structures are involved and that adequate sewage disposal facilities are established.

MAPS: USGS, 7.5 Min.Ser. (Topo.), JAMESVILLE Quadr., 1968.

C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY, Wolf Trap to Pungoteague Creek, 1971.

PHOTOS: Aerial-VIMS 100ct72 AC-1-1, 6, 7; AC-2A-29 to 34; AC-2B-35;
VIMS 9Apr73 AC-2B-419.

Ground - VIMS 13Sep73 AC-1-4G; AC-2A-5G.

CRADDOCK CREEK, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 2B (Maps 2)

EXTENT: Area - 650 acres total, with approximately 500 acres in the main body extending eastsoutheast, and 150 acres in a branch northeast from near the mouth of the creek. Length - 2.5 miles in the main body, the northeast branch is 0.9 miles. The perimeter of the creek is 13.3 miles; the main branch is 9.6 miles and the northeast branch is 3.7 miles.

SHORELANDS TYPE
FASTLAND: Low shore, with low bluff along 85% (8.2 mi.) of the main branch; low shore, gently sloping along 80% (3 mi.) of the northeast branch.
SHORE: Primarily - 90% fringe marsh (12.0 mi., 38 acres), embayed marsh - 7% (0.9 mi., 12 acres), and, in scattered reaches in the lower half of the creek, narrow sand beach - 3% (0.4 mi.).
CREEK: A drowned meander pattern with dendritic branches. The main branch trends WNW - ESE in the outer half, W - E inner half. Most branches are short. Central depths are about 5 feet in the outer half, shoaling rapidly to 1 or 2 feet. Northeast branch has maximum depths of 3 or 4 feet. The bottom, of both branches, is muddy.

SHORELANDS USE
FASTLAND: Agricultural (80%) and unmanaged, wooded (20%).
SHORE: Access to occasional boat landings and moorings. There appears to be some shoreline alteration, possibly for development, and in a small north trending arm of the northeast branch at the end of Route 752.
CREEK: Limited boating, and some shellfishing.

OWNERSHIP: Private.

FLOOD HAZARD: High in the northeast branch, could be critical if development should take place as the land is very low and is open to the southwest directly to the bay. The hazard is medium, noncritical elsewhere in the creek.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Poor. The beach area is very limited, narrow and relatively inaccessible.

SHORE EROSION SITUATION
EROSION RATE: There is slight, noncritical erosion at the sand beach areas facing toward the bay. No erosion throughout most of the creek.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None.

OTHER SHORE STRUCTURES: An earthen dike appears to have recently been constructed across the mouth of a small cove near the upper end of the northeast branch (possible development area). There may be a culvert connecting the cove with the rest of the creek. There are two small piers near the head of the creek.

NAVIGABILITY
APPROACHES: There is no channel into Craddock Creek from the bay, and there appears to be a considerable area across which MLW depths are only 1 foot.
INLET: There is a closed, channel-like area, 4 to 10 feet deep at the inlet, with a small branch extending 0.2 miles into the northeast branch, and the main section extending 0.9 miles into the main creek, but it does not connect with the bay.
CREEK: Generally shallow and muddy. Except for the closed deeper area near the inlet, depths are 3 feet or less through most of the creek.

POTENTIAL USE ENHANCEMENT: Craddock Creek is small and not suited to navigation. For the forseeable future it should be left as it is, primarily under private agricultural management.

MAPS: USGS, 7.5 Min.Ser. (Topo.), JAMESVILLE Quadr., 1968.
C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY, Wolf Trap to Pungoteague Creek, 1971.

PHOTOS: Aerial-VIMS 100ct72 AC-2B-35, 36;
VIMS 9Apr73 AC-2B-419 to 421, 979 to 996.

HYSLOP MARSH, CRADDOCK NECK,

ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 2C (Maps 3)

EXTENT: 15,500 feet (2.9 mi.), from the mouth of Craddock Creek across the mouth of Back Creek to Milbys Point at the north end of Hyslop Marsh.

SHORELANDS TYPE
FASTLAND: Low shore, elevations are generally below 5 feet on the outer part of Craddock Neck, rising gently to 10 feet near the heads of the creeks 2½ to 3 miles inland.
SHORE: Extensive marsh (1,706 acres) bordered on the bay side by a linear zone of wind blown sand flats and dunes. The marsh is, on the average, 3,000 feet wide and has local areas of ponds at the north and the center. It is bounded on the south by Back Creek. About six acres of embayed marsh border Back Creek.
There is fringe marsh along the beachfront of the 700-foot spit south of Sandy Point, and some intermittent fringe marsh along the beach for about 2,500 feet north of Sandy Point, and almost continuous fringe marsh along the beach for 5,500 feet south from Milbys Point.
NEARSHORE: Wide (average 1,700 yds.), characterized by 4 or 5 large transverse sand waves which trend WSW, upon which are superimposed multiple, discontinuous, parallel sand bars.

SHORELANDS USE
FASTLAND: Agricultural - 50% (south half); unmanaged, wooded - 50% (north half).
SHORE: Hunting.
NEARSHORE: Sport fishing.

OFFSHORE BOTTOM: Gently sloping with some low-relief dips to about 35 feet. The bottom is made up of sandy-mud and muddy-sand.

WIND AND SEA EXPOSURE: The shore trends NNE - SSW. The fetch from the NNW is over 40 miles, from the WNW is 21 miles, and from the WSW is 18 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical; there are no habitations in the area of high flood hazard.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Good to poor. Good in the middle where there is a reach of about 5,000 feet of clean, intermediate width, sand beach, however, there is no access from the fastland. Poor at the north and south of the subsegment.

SHORE EROSION SITUATION
EROSION RATE: Moderate, noncritical, about two feet per year for most of the subsegment. The VIMS historical erosion study shows erosion rates of approximately 3 feet per year along the shorefront of Hyslop Marsh.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: At present the area should be left as it is. If population pressures ever get to the point where more beach areas are desirable, a roadway might be constructed across the marsh to provide access to the beach at the center of the subsegment with due consideration to preserving present drainage patterns. This could provide an added attraction for bird watchers and nature lovers in general.

MAPS: USGS, 7.5 Min.Ser. (Topo.), JAMESVILLE and NANDUA CREEK Quadrs., 1968.
C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY, Wolf Trap to Pungoteague Creek, 1971.

PHOTOS: Aerial-VIMS 10Oct72 AC-2B-36; AC-2C-37 to 44;
VIMS 9Apr73 AC-2B-421; AC-2C-422 to 424.

NANDUA CREEK, ACCOMACK COUNTY, VIRGINIA

SEGMENT 3 (Maps 3)

EXTENT: Area - 2,360 acres including Back Creek at Hacksneck, Curratuck Creek, McLean Gut, Boggs Gut and Kusian Cove. Length - about 5.1 miles along the main axis of the creek from the mouth to the marsh at the head of the longest branch. Curratuck Creek is the longest tributary with a length of $\frac{1}{4}$ mile. Perimeter - 24.6 miles, within the fastland boundaries of the segment. Within this, Curratuck Creek has a perimeter of 5.2 miles and Back Creek has one of 3.5 miles.

SHORELANDS TYPE

FASTLAND: Low shore. The 5-foot contour commonly lies close to the shore. The 10-foot contour lies well back, except at the heads of the various creek branches.

SHORE: Primarily fringe marsh (21.8 mi., 80 acres); a few short reaches of narrow sand beach in the lower creek mostly in areas of some fetch (total 1.5 mi., 74 acres) and embayed marsh, (1.3 mi. shoreline, 64 acres).

CREEK: Submerged meander pattern with dendritic branches. There is a 90-degree direction change near the mouth, from a NW - SE trend in the outer creek to a NE - SW trend in the inner creek. The shallow bottom is sandy; the deeper bottom is muddy. Sand waves and repetitive parallel bars are particularly evident on the outer side of the 90-degree elbow, just southwest of Curratuck Creek.

SHORELANDS USE

FASTLAND: Agricultural (88%), unmanaged, wooded (8%), unmanaged, open (2%), residential (2%), and commercial (1%).

SHORE: Access to boating including piers, moorings and ramps. Some beach recreation at Cedar View.

CREEK: Both pleasure and commercial (boating, crabbing, and fishing).

OWNERSHIP: Private.

FLOOD HAZARD: High on the lower creek, critical at Hacksneck near Back Creek, where the entire community of two dozen residences and one or two crab businesses are all situated less than 5 feet above sea level, are highly susceptible to storm surge flooding from the bay. Medium to low on the middle and upper creek and its tributaries, most buildings are above 5 feet. Flood hazard at Cedar View, which is generally above 5 feet, is medium and could become critical due to possibility of storm surge from the bay.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Generally poor. There are few beaches, those which do occur are thin and usually covered with stumps and other debris. One beach in a branching cove opposite Fairview Neck, off Rte. 633, appears to have been man-made as it is in a protected area where neither erosion nor sand deposition would be expected to occur.

SHORE EROSION SITUATION

EROSION RATE: Moderate, noncritical, 2 to 3 feet per year at exposed beach areas in the lower creek; no erosion noted on the upper creek.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: Three small stone groins and a 400-foot wooden bulkhead (constructed of untreated wood) are located at Cedar View (Photos AC-3-252, 253). The bulkhead's effectiveness is satisfactory but that of the groins was not apparent. There is a 75-foot wooden bulkhead off Rte. 633, opposite Fairview Neck which appears to be in good condition. On the downstream side of Kusian Cove at Nandua there is about 400 feet of concrete bulkheading which looks satisfactory from the air views.

Suggested Action: None at present.

OTHER SHORE STRUCTURES: Of some 19 wharves, 3 or 4 are commercial on Back Creek, the others are private. There is a public asphalt boat launching ramp on Back Creek (end Rte. 631), and a private, concrete ramp at Cedar View. Just north of Monadox Point there is a private marine railway for small boats, and a commercial railway off Rte. 630 which will handle boats up to 45 feet.

NAVIGABILITY

APPROACHES: A narrow and winding, 5-foot, dredged channel leads across the nearshore to Nandua Creek. The offshore end of the channel is marked by a light, and day beacons mark the courses of the channel.

INLET: The bottom in the vicinity of the inlet is subject to shifting and is not well marked. Depths ranging between 8 and 16 feet are encountered.

CREEK: A few day beacons mark the channel, whose depths of about 4 feet are carried to just past the entrance to Kusian Cove.

POTENTIAL USE ENHANCEMENT: Nandua Creek is very attractive in its present state. It appears undesirable to develop the creek as it is surrounded by creeks of greater commercial capacities. The fastland surrounding the lower creek is too low in elevation to be suitable for residential development. The upper creek seems well suited for its present use, agriculture and low density residential.

MAPS: USGS, 7.5 Min.Ser. (Topo.), NANDUA CREEK, JAMESVILLE, EXMORE and PUNGOTEAGUE Quadrs., 1968.
C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY, Wolf Trap to Pungoteague Creek, 1971.

PHOTOS: Aerial-VIMS 10Oct72 AC-2C-45, AC-3-46, 47;
VIMS 18Dec72 AC-3-48 to 69;
VIMS 9Apr72 AC-2C-424, AC-3-425 to 429,
AC-2C-857, AC-3-858 to 978.

Ground - VIMS 13Sep73 AC-4-6G, AC-3-247G to 253G.

HACKS NECK, ACCOMACK COUNTY, VIRGINIA

SEGMENT 4 (Maps 3 and 4)

EXTENT: 17,700 feet (3.4 mi.) from Back Creek (tributary of Nandua Creek) north along the general trend of the shoreline, across the mouth of Butcher Creek to Bluff Point, at the south side of the approach to Pungoteague Creek.

SHORELANDS TYPE

FASTLAND: Low shore. This is a neck, wider along the fastland-shore boundary than inland, with no elevations higher than 10 feet. It is penetrated by Butcher Creek which splits the shore and enters ¾ mile into the fastland.

SHORE: Extensive marsh (231 acres) with a very irregular shoreline in the southerly half. There is a 6,000-foot sand beach fronting the marsh at the south side of Butcher Creek inlet. Access is provided via a road across the marsh. Just north of Butcher Creek an inaccessible 3,000-foot beach fronts the marsh. Around the head of Butcher Creek there are about 15 acres of embayed marsh.

NEARSHORE: Intermediate width (av. 850 yds.), very shallow across most of its width, with multiple parallel bars superimposed on larger, oblique sand waves.

SHORELANDS USE

FASTLAND: Unmanaged, wooded (50%) and agricultural (50%), primarily located around the head of Butcher Creek.

SHORE: Hunting on the marshes; and bathing at Mason Beach at the south side of Butcher Creek entrance.

NEARSHORE: Sport fishing.

OFFSHORE BOTTOM: A 15 to 20-foot channel parallels the shore leading from Chesapeake Bay in a northeast direction to Pungoteague Creek. A large, wedge-shaped shoal, with minimum depths of about 6 feet, lies between the channel and the bay. Bottom slopes are gentle; sediment is sand in the shoal areas, muddier in deeper waters.

WIND AND SEA EXPOSURE: The shore trends NE - SW. The fetch from the NNW is 10 miles, from the NW is 30 miles, from the W is 20 miles, and from the SW is 20 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical in the shore area. Most of the shore is marsh, there are no buildings. Most permanent buildings are a mile or more back from the beach. Medium, critical in the Hacksneck area where several residences are below the 5-foot contour.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Fair. There is a total of about 9,000 feet of intermediate width beach in the vicinity of Butcher Creek. Mason Beach is 6,000 feet long and is accessible by paved road. Trash and general lack of care detract from its desirability at present.

SHORE EROSION SITUATION

EROSION RATE: Generally moderate, noncritical. Severe, noncritical in the Mason Beach area. The VIMS historical erosion survey gives rates ranging from 0 to 3.5 feet per year.

ENDANGERED STRUCTURES: There are no buildings in the eroding areas, but the road ending at the beach may be cut.

SHORE PROTECTIVE STRUCTURES: There is a little scattered concrete riprap at the end of the road. The arrangement of the riprap is so scattered that it can be of no service, indeed it may cause turbulence and locally increase erosion.

Suggested Action: Under present conditions, no action appears warranted for reducing the erosion rate.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Low. The marshes should be left undisturbed. Existing beaches within the segment could satisfy future demand if the population should increase considerably. They should, however, be regularly policed.

MAPS: USGS, 7.5 Min.Ser. (Topo.), NANDUA CREEK and PUNGOTEAGUE Quadrs., 1968.
C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY, Wolf Trap to Pungoteague Creek, 1971.

PHOTOS: Aerial-VIMS 10Oct72 AC-3-69; AC-4-70 to 77;
VIMS 9Apr73 AC-3-429; AC-4-430 to 437.

Ground - VIMS 13Sep73 AC-4-7G to 11G.

PUNGOTEAGUE CREEK, ACCOMACK COUNTY, VIRGINIA

SEGMENT 5 (Maps 4 and 5)

EXTENT: Area - 1,085 acres total; the main body contains 861 acres, Underhill Creek 61 acres, Taylor Creek 107 acres and Warehouse Creek 55 acres. The length of the main body is 4.5 miles; Taylor Creek has a length of 1.8 miles, Underhill Creek and Warehouse Creek are both about a mile long. The shoreline perimeter of the creek system is approximately 19 miles.

SHORELANDS TYPE

FASTLAND: Low shore. Elevations are generally below 5 feet on the lower creek, there is a 5-foot rise near shore on the middle creek; and on the upper creek there is a low bluff to 10 feet.

SHORE: Primarily fringe marsh (17.2 mi., 41.6 acres), 1.1 miles of embayed marsh frontage on the creek comprising some 129 acres; and 0.6 miles of sand beach divided into several shore reaches facing wide fetches on the lower creek.

CREEK: Submerged meander pattern with dendritic branches. There are three nearly right-angle jogs in the lower creek. The channel approach is from the southwest, it turns southeast at the inlet, then northeast a half mile in, and after another half mile, turns again to the southeast before breaking into the dendritic pattern of the middle and upper creek. A wide nearshore area of shallow, multiple sand waves lies off the northwest-facing shores of Hacks Neck and off the reach between Hancock Gut and Warehouse Point on the lower creek. The deeper areas of the outer creek and the middle and upper creek bottom in general are muddy. The shoaler areas of the nearshore and lower creek are sandy.

SHORELANDS USE

FASTLAND: Agricultural (88%), unmanaged, wooded (10%), commercial (1%), and recreational (1%).

SHORE: Access to boating, including piers, moorings, ramps, and bathing at Yeo Neck near Eastern Shore Yacht and Country Club.

CREEK: Commercial navigation to Harborton, which is a loading point for pulpwood barges. Crab boats and crab floats are located on the creek, there is sport fishing on the outer creek, and there is pleasure boating.

OWNERSHIP: Private.

FLOOD HAZARD: High on the outer creek, critical to the residences which are nearly all below the 5-foot elevation, and to a development which apparently is progressing to the west of Underhill Creek (Photo AC-5-850). Moderate, could be critical, in the middle creek (Harborton area), as the general elevation is below 8 feet. Low, noncritical on the upper creek.

WATER QUALITY: Satisfactory, except at the headwaters of Pungoteague Creek, which is unsatisfactory and restricted to the taking of shellfish.

BEACH QUALITY: Poor. Beaches are few, narrow, likely to be debris-laden from bank erosion, and are, for the most part, inaccessible. There is approximately 700 feet of fair beach on Yeo Neck near the Eastern Shore Yacht and Country Club. This beach is probably man-made and private.

SHORE EROSION SITUATION

EROSION RATE: There is evidence of some slight erosion along the various short reaches of beach which do occur in the segment and face westerly and northwesterly fetches.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There is a new back-filled pier enclosed by steel sheet piling and riprapped at the shore ends at the Chesapeake Corporation landing in Harborton. At Evans Wharf the road ending is riprapped with concrete blocks. There is a 50-foot length of wooden bulkheading facing toward the bay, located 1,000 feet southeast of the mouth of Underhill Creek, that appears to be in good condition.

Suggested Action: None appears necessary at present.

OTHER SHORE STRUCTURES: There are two or three commercial piers in Harborton primarily serving the crab business and there also is the pulpwood loading facility at the Chesapeake Corporation. Elsewhere in the creek there are approximately 25 piers and wharves of plank and pile construction. At least one development, and a possible second, are located either side of Underhill Creek. They are apparently planned as waterside residential developments. Their exposure to the southwest and their low elevations subject them to high flood hazard.

NAVIGABILITY

APPROACHES: The channel is somewhat narrow and winding from the southwest across the nearshore zone, but is well marked by lights and day beacons. Minimum channel depth is 11 feet.

INLET: Stable, well marked with 10 to 15-foot depths.

CREEK: Depths of 8 feet are carried to the piers at Harborton and the channel is adequately marked. Depths of 3 to 8 feet continue for another mile up the creek to the vicinity of Boggs Wharf. The upper creek and the tributaries are rarely deeper than 2 feet.

POTENTIAL USE ENHANCEMENT: With the deep channel and good marking, it is possible that marina facilities in the Harborton area could be amplified, with due care taken to avoid pollution. Upper creek sites might be desirable for low-density residential development, but this type of activity should be avoided on the lower creek due to the high flood hazard.

MAPS: USGS, 7.5 Min.Ser. (Topo.), PUNGOTEAGUE Quadr., 1968.
C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY, Wolf Trap to Pungoteague Creek, 1971.

PHOTOS: Aerial-VIMS 10Oct72 AC-5-78, 79;
VIMS 9Apr73 AC-5-438, AC-4-785, 786, AC-5-787 to 856.

Ground - VIMS 13Sep73 AC-5-12G, 13G.

SLUITKILL NECK, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 6A (Maps 4 and 5)

EXTENT: 10,200 feet (1.9 mi.) along the shore-fastland boundary between Klondike Point on Pungoteague Creek and Indian Point on Matchotank Creek. Included in the subsegment are Finneys, Scarborough and Parkers Islands.

SHORELANDS TYPE

FASTLAND: Low shore. The neck is somewhat constricted at the inner end by creeks, and elevations are generally lower than 10 feet.
SHORE: Extensive marsh covers most of the shore area with a total area of about 446 acres. All of the mainland area is marsh. Finneys Island is all marsh except for about an acre of sand divided between the two southern extremities. Parkers Island has 52 acres of marsh and 19 of sand, Scarborough Island is mostly sand, 9 acres with 1 acre of marsh. Overall, the shore area is 94% extensive marsh and 6% sand. Scarborough Island appears to be an emergent sand bar, and the entire bayward facing shore of Parkers Island is sand beach. There also is 1.3 miles of fringe marsh amounting to about 4 acres along the south shore of Matchotank Creek and about 10 acres of embayed marsh at the head of the creek.
NEARSHORE: This zone includes the tidal flats around the islands. A channel 8 to 13 feet deep runs north from Pungoteague Creek between Finneys Island and West Point and Tarkill Creek. The 12-foot contour lies about 4,400 yards off the islands, making an extremely wide nearshore zone. Slopes are gentle, and sand waves and bars occur without any particular pattern.

SHORELANDS USE

FASTLAND: Unmanaged, wooded (90%) and scattered agricultural (about 10%).
SHORE: Waterfowl hunting on the marshes, and shellfishing in the tidal areas.
NEARSHORE: Sport fishing.

OFFSHORE BOTTOM: The offshore area slopes down to 70 feet, gently first, then steeply, at the entrance to Pocomoke Sound, about 7,000 yards off the islands.

WIND AND SEA EXPOSURE: The general trend of the shoreline is NNE - SSW. The fetch from NNW (Tangier Island area) is 9 miles, from NW is 20 miles, from W is 20 miles and from SW is 22 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical. Except for one or two camps on the islands, there are no habitations in the marsh-shore area. On the outer fastland, near the head of Tarkill Creek, there is one farm with buildings on ground lower than 5 feet. The farm area is largely surrounded by dikes to prevent flooding. Most other buildings are well inland and/or are above the 5-foot contour.

WATER QUALITY: Satisfactory.

BEACH QUALITY: There are no beaches on the mainland shore. Those on the bay side of the islands, particularly Parkers Island, are fair to good in quality, but inaccessible to the general public.

SHORE EROSION SITUATION

EROSION RATE: Moderate to severe, noncritical. On the bay shore of the island the erosion rate is 4 to 5 feet per year. For the mainland shore the VIMS historical survey shows a rate of 1.5 feet per year. No erosion is noted on the insides of the islands or in the Tarkill Creek area.
ENDANGERED STRUCTURES: There is one small building near the north end of Parkers Island which might be lost through erosion.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None. Due to the inaccessibility and consequent lack of use of the offshore islands, it would not be economically feasible to attempt to protect the eroding beach. This also is essentially true of the marsh shores of Sluitkill Neck.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Minimal. The large expanse of marsh shore both on the islands and the mainland, together with the general low elevation and relief of the subsegment preclude any major development either for residential use or for recreation.

MAPS: USGS, 7.5 Min.Ser. (Topo.), PUNGOTEAGUE Quadr., 1968.
C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY, Wolf Trap to Pungoteague Creek, 1971.

PHOTOS: Aerial-VIMS 100ct72 AC-6A-80;
VIMS 9Apr73 AC-6A-439 to 443, 783, 784, AC-6B-444, AC-5-855, 856.

BROADWAY NECK, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 6B (Maps 6)

EXTENT: 10,000 feet (1.9 mi.) along the shore-fastland boundary between Matchotank Creek and the northeast end of East Point.

SHORELANDS TYPE

FASTLAND: Low shore, dissected by several small creeks, particularly in the north half. The 5-foot contour crosses the subsegment about 0.6 miles back from the bay shore.

SHORE: Extensive marsh, primarily in the southerly fourth - 27% (29 acres); the northerly three-fourths is comprised of fringe marsh - 32% (5 acres), sand beach - 25% (3.7 mi.) and embayed marsh - 16% (15 acres).

NEARSHORE: Wide, shallow with irregular shoals and winding channels. The slope from 6 to 12 feet is comparatively steep. The bottom is sandy, with two series of bars more or less conforming to the shoreline trend off Thicket Point, with a natural channel of 5 feet running north to south between. A spoil area borders the south side of the entrance channel to Onancock Creek.

SHORELANDS USE

FASTLAND: Unmanaged, wooded (60%) residential, backed by agricultural on East Point and at Broadway Landing (40%).

SHORE: Beach recreation, access to boats, and waterfowl hunting in the marsh areas.

NEARSHORE: Channel access to Onancock Creek, some sport fishing, and shellfishing.

OFFSHORE BOTTOM: The entrance to Pocomoke Sound lies 4 nautical miles offshore. Channel depths are about 50 feet generally, but there is one deep area to 70 feet. The channel slope is quite steep, shoaling from 50 feet to 18 feet over a distance of 150 to 300 yards. The bottom is hard except it is muddy in the deeper channel areas.

WIND AND SEA EXPOSURE: The shoreline trends NE - SW. The fetch from the NNW is 5 miles, from the NW is 10 miles, from the WNW is 21 miles, and from the W is 22 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, critical. Both residential areas, Broadway Landing and East Point, face the bay, are low, and therefore are very subject to damage by storm surge. Nearly the whole outer half of Broadway Neck is less than 5 feet in elevation.

WATER QUALITY: Unsatisfactory.

BEACH QUALITY: Fair. There are medium width beaches at Broadway Landing and at East Point, but they are cluttered with ineffective groins. Small, narrow, and inaccessible beaches occur to the south of Thicket Creek entrance and to the south of Thicket Point.

SHORE EROSION SITUATION

EROSION RATE: Moderate, noncritical. According to the VIMS historical erosion study, there has been an erosion rate of 2 feet per year south of Thicket Point. No figures are given for the rate at Broadway Landing or East Point, but the presence of old groins and bulkheads indicates a history of moderate erosion along the shore north of Thicket Point also. No erosion is evident in Matchotank Creek or in the smaller creeks.

ENDANGERED STRUCTURES: The road extension to the beach from Route 767 at East Point has been cut back in the past, but is now protected by a bulkhead, which continues southwest along the beach to protect the house next to the road. The erosion appears to be halted at present.

SHORE PROTECTIVE STRUCTURES: At Broadway Landing there was a small earthen dike along the backshore about 300 feet long, and a poorly designed concrete block seawall was being built in front of the dike in September 1973 (Photo AC-6B-15G). An older block wall extends beyond the new construction for 200 feet. This was beginning to topple, was shored up and had been replaced by another block wall farther back from the beach (Photo AC-6B-18G). In front of the wall are 28 short, single-block high groins placed only 15 to 20 feet apart. For another 100 feet northeast of the concrete block wall there is a plank bulkhead and two massive-looking wooden groins at either end. These are actually quite flimsy structures, consisting of two parallel board walls with trash filling between (Photos AC-6B-16G and 17G). These are already deteriorating at the outer ends.

At East Point a wooden piling bulkhead was placed along the waterfront from the extension of Route 767 to the beach northeast of the point, a distance of 2,000 feet. Much of this has rotted away. In addition, there are 18 pilings or railroad tie groins extending outward from the bulkhead at intervals along the beach (Photos AC-6B-21G and 22G).

For the most part, the structures mentioned above have not been very effective in preventing erosion. At Broadway Landing the groins are too low and too close together, the seawall has no foundation and is not substantial enough, as is also true of the larger plank groins. At East Point the bulkhead was originally constructed improperly of piling or railroad ties. The timbers were placed vertically side by side, but not sealed so that water was able to pass between, the timbers causing turbulence and, probably, increased erosion. If this had been a higher energy shore, the consequences might have been disastrous. One fairly large groin near the north end of East Point, which is tied into a more substantial section of bulkhead, does appear to be effectively holding sand drift toward the entrance to Onancock Creek.

Suggested Action: Sound coastal engineering advice should be obtained before proceeding with additional efforts at both Broadway Landing and at East Point. Using a unified approach at both locations, well designed seawalls and groin fields could be installed and provide ample protection.

OTHER SHORE STRUCTURES: There are two small piers in Thicket Creek, two larger finger piers at Broadway Landing and there appears to be one small pier on upper Matchotank Creek. One dredged boat slip off Matchotank Creek into Broadway Neck halfway up the creek has alongside moorings for two or three boats.

POTENTIAL USE ENHANCEMENT: Replacement of existing beach defenses with properly designed structures will improve the presently developed areas. The high flood hazard dictates careful consideration (in structure design) if any additional development should occur on Broadway Neck.

MAPS: USGS, 7.5 Min.Ser. (Topo.), PUNGOTEAGUE
Quadr., 1968.
C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY,
Wolf Trap to Pungoteague Creek, 1971.

PHOTOS: Aerial-VIMS 100ct72 AC-6B-89, 90;
VIMS 9Apr73 AC-6A-443, AC-6B-444 to 449,
AC-7-450 to 452, AC-7-709 to 717.

Ground - VIMS 13Sep73 AC-6B-14G to 22G.

ONANCOCK CREEK, ACCOMACK COUNTY, VIRGINIA

SEGMENT 7 (Maps 6)

EXTENT: Area - For the purpose of this report, the creek is considered to be bounded on the bay side by a straight line drawn between the northeast end of East Point and the fastland-shore boundary at the inland side of Parkers Marsh, 0.7 miles northwest of Poplar Cove. Total creek area is approximately 950 acres, including the various tributary creeks. Length - Approximately 4 miles from the bayside boundary to the head of Central Branch; the distance from the nearshore edge (12-ft. contour) is 7 miles. The perimeter of the creek system is 24 miles.

SHORELANDS TYPE

FASTLAND: Low shore. Elevations are generally 8 feet or less in the vicinity of the lower creek. In the upper creek there is a 10 to 15-foot bluff just in from the shoreline.

SHORE: Of the 24 miles of shoreline, 21.4 miles (89%) is fringe marsh comprising 78 acres; 1.5 miles (6%) is embayed marsh comprising 37 acres; and 1.1 miles (5%) is narrow sand beach in scattered reaches and pockets facing open fetches.

CREEK: Submerged meander pattern with dendritic branches. There is a natural channel with 10-foot depths for 2 miles within the creek. Elsewhere the creek is shallow and muddy (except where dredged), with the exception of the tidal flats northwest of the end of Bailey Neck, which contain sand bars normal to the beach. The heads of most of the branches contain embayed marsh.

SHORELANDS USE

FASTLAND: Agricultural, 17.5 miles (73%), unmanaged, wooded, 3.1 miles (13%), residential, 2.9 miles (12%), and commercial, 0.5 miles (2%).

SHORE: Mostly undisturbed fringe marsh with occasional moorings and access for boats. Some dockage in Onancock on all three branches, at Poplar Cove and at the back side of East Point. In addition there are various individual finger piers throughout the creek system.

CREEK: Both commercial and pleasure boat traffic, some fishing and shellfishing.

OWNERSHIP: Private - 99%, and Public - 1%.

FLOOD HAZARD: High, critical, in the lower creek to homes at East Point and to new developments off Parkers Creek and at Poplar Cove. Elevations are barely 5 feet above mean sea level, and there is open exposure to storm surge from the bay. Medium hazard in the Cedar Creek and Finneys Wharf vicinity; low in the upper creek, Onancock area, where elevations are 10 to 15 feet, except for piers and boat houses.

WATER QUALITY: Satisfactory except for Parkers Creek and 440 acres of the headwaters of Onancock Creek which were found unsatisfactory as of July 1973.

BEACH QUALITY: Poor. The few reaches of natural beach are thin, narrow and not accessible. One possible artificial beach at the end of Finneys Neck appears to be in the process of development.

SHORE EROSION SITUATION

EROSION RATE: Moderate erosion at sand beaches, such as at the end of Bailey Neck. On the upper creek, where low bluffs are close to the water, there are local areas of erosion (Photo AC-7-243G).

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There are about 400 feet of rubble riprap around the point at Finneys Wharf, and about 200 feet along the bayside of the point at Poplar Cove. There appear to be no other structures placed to protect against natural erosion, but there are several bulkheads constructed to hold fill, or to hold the bank where channel cuts have been made to moor boats along the shore. There is 600 feet of wooden bulkhead in a slip southeast of Onley Point, about 2,000 feet in the Onancock area, 200 feet at the mouth of Finneys Creek, and about 1,000 feet on lower Parkers Creek. The condition of these bulkheads is fair to good.

Suggested Action: None at present.

OTHER SHORE STRUCTURES: There are about 65 piers on the creek ranging from small, private finger piers to substantial commercial piers in the Onancock area. There are small marinas at Poplar Cove (with a railway), and on the South Branch at Onancock. There are a few dug basins along the creek, and there appears to be a development going on in the south bank near the mouth of Parkers Creek. Two bridges, both for automobile traffic, cross the Central Branch in Onancock. Groups of pilings indicate that substantial piers existed in the 1950's between Poplar Cove and Cedar Creek.

NAVIGABILITY

APPROACHES: There is an 11-foot dredged channel across the nearshore area. It is well marked with lights, buoys and day beacons.

INLET: Stable, the 11-foot, well marked channel continues through the inlet.

CREEK: The 11-foot deep channel, marked by day beacons, extends to Onancock and 0.2 miles into North Branch to a turning basin. Lesser depths, but adequate for most pleasure crafts and small work boats, carry in to the Central and South Branches. Navigation into Finneys and Parkers Creeks requires caution, but depths to 3 feet occur in much of the area.

POTENTIAL USE ENHANCEMENT: Minimal. The lower part of Onancock Creek is too susceptible to flood damage to permit a recommendation for additional development. There are some areas on the upper reaches and branches which would permit additional low density residential development. There is already considerable boating, and increasing the traffic would also increase the danger of water pollution.

MAPS: USGS, 7.5 Min.Ser. (Topo.), PUNGOTEAGUE and ACCOMAC Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 100ct72 AC-6B-90;
VIMS 9Apr73 AC-6B-449, AC-7-450 to 453, AC-8A-454; AC-7-654 to 703, AC-6B-717, AC-7-718 to 782.

Ground - VIMS 13Sep73 AC-6B-19G, 20G, AC-7-23G;
VIMS 21Nov73 AC-7-243G to 246G.

PARKERS MARSH, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 8A (Maps 6)

EXTENT: 12,500 feet (2.4 mi.) along the shore-fastland boundary between Onancock and Chesconessex Creeks. Crystal Beach at the end of Route 782, and the inland part of South Chesconessex are included in this subsegment.

SHORELANDS TYPE

FASTLAND: Low shore with a very gentle slope.
SHORE: Extensive marsh bisected by Back Creek. Over two-thirds of the southerly part has linear sand dunes behind the beach. The beach is fair to poor sand, with occasional peat outcrops. The extensive marsh lies behind all this, with a few wooded hummocks with elevations of 5 feet or more. The shoreline is mostly marsh outcrop, but there is about 500 feet of good sand beach at Crystal Beach (end of Route 782). Of some 37,000 feet of shoreline, not including the numerous small creeks, there are 4,300 feet of sand beach south of Back Creek and about 800 feet north of the creek. Altogether marsh and peat front account for 86% of the shoreline and sand beach 14%. The extensive marsh comprises 936 acres. There is also 20 acres of embayed marsh cutting back into the fastland in the southerly part of the subsegment.
NEARSHORE: Wide adjacent to the major creek mouths both north and south of the subsegment, intermediate width at the center of the subsegment; multiple sand bars occur sub-parallel to the shore. Near the center there are three or four longer wavelength sand waves obliquely crossing the bars.

SHORELANDS USE

FASTLAND: Unmanaged, wooded, agricultural behind (99%) and residential, Crystal Beach, (1%).
SHORE: There is beach recreation at Crystal Beach, hunting north of Back Creek, and a wildlife refuge on Parkers Marsh.
NEARSHORE: Boating and sport fishing.

OFFSHORE BOTTOM: Pocomoke Sound entrance lies off Parkers Marsh. The sound width to Watts Island is about 4 nautical miles and channel depths reach 80 feet 2.5 miles off the shore. The offshore bottom is generally muddy.

WIND AND SEA EXPOSURE: The shoreline trends NNE - SSW in the southerly part to ENE - WSW in the northerly part. The fetch from the NNW is 14 miles (to Smith Island), from the NW is 4 miles, from the W is 22 miles, and from the SW is 25 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical over most of the area; however it is critical to the small vacation community of Crystal Beach, which is located on the edge of the sound below the 5-foot contour.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Fair in the sand beach areas, (Photos AC-8A-28G, 29G), poor elsewhere. There is no public access to the beaches in the subsegment.

SHORE EROSION SITUATION

EROSION RATE: Severe to none, noncritical. The VIMS historical study shows an erosion rate of 5 feet per year, and a 1 foot per year accretion rate to the south at Ware Point. No erosion is indicated by the study in the area north of Back Creek, but local property owners state that there is about 1 foot per year loss along the sand area at Crystal Beach.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: A short study to determine direction of drift, followed by emplacement of 1 or 2 groins and possibly a sill between them, might alleviate the erosion problem at Crystal Beach. At Sound Beach on Parkers Marsh there is at present no economically feasible way to reduce the erosion.

OTHER SHORE STRUCTURES: None, except for a large basin being excavated at the north of Crystal Beach. This does not appear to be connected with the sound or the creek, and its purpose is at present not clear. (Photos AC-8A-101 and AC-8A-27G).

POTENTIAL USE ENHANCEMENT: The marsh areas to the south of Back Creek are already well designated as a wildlife refuge (Parkers Marsh Natural Area). It would seem desirable to reserve the marshes to the north for the same purpose as they are more or less contiguous. The fastland area near Crystal Beach is too low to justify extensive development and probably should be restricted to occupation by relatively low value seasonal residences.

MAPS: USGS, 7.5 Min.Ser. (Topo.), PUNGOTEAGUE and CHESCONESSEX Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 10Oct72 AC-6B-90, AC-8A-91 to 101;
VIMS 9Apr73 AC-7-453, AC-8A-454 to 456, 704 to 708.

Ground - VIMS 13Sep73 AC-8A-27G to 29G.

CHESCONESSEX CREEK, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 8B (Maps 7)

EXTENT: Area - Chesconessex Creek has an area of 240 acres. Length - Within the creek, the main arm has a length of 1¾ miles. Its length from the 12-foot contour (edge of the nearshore) is 3¼ miles. The shoreline perimeter is 6.5 miles.

SHORELANDS TYPE

FASTLAND: Low shore. The ground is generally above 5 feet within 300 feet of the shore.
SHORE: Fringe marsh, 5.2 miles (80%); embayed marsh, 1 mile (15%); narrow sand beach 0.3 miles (5%). The fringe marsh comprises 19 acres; the embayed marsh, 24 acres.
CREEK: Submerged meander pattern with a somewhat dendritic, minor tributary pattern. The lower creek has 4 to 6-foot depths, while above the villages it is generally 2 feet or less. The bottom is soft. The orientation of the creek entrance is east to west; that of the middle creek north to south; and that of the upper creek northwest to southeast.

SHORELANDS USE

FASTLAND: Agricultural (99%), commercial and residential (1%).
SHORE: Access to boats and moorings, wharf crossings, crab float storage, and boat ramps and railways.
CREEK: The crabbing industry is the primary user of the creek. There are 5 crab float enclosures, several skidways or railways for boat hauling, and several piers and slips for the crab boats. There is a small amount of pleasure boating.

OWNERSHIP: Private.

FLOOD HAZARD: Medium, critical, in a high flood, as many residences, particularly in South Chesconessex, are barely 5 feet above sea level and might be seriously affected by high storm surge from the bay.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Poor. Only about 5% of the creek shore is sand beach. It is narrow, actively eroding, with peat outcrops. Most of the beach area is in the lower creek, facing fetches from the creek approaches. Two beach areas, each about 50 feet long, are located on the middle creek where property owners have probably removed the marsh to make a sand beach.

SHORE EROSION SITUATION

EROSION RATE: Slight, noncritical. West-facing beaches near the mouth are eroding slightly as are those north-facing beaches just below South Chesconessex. In each instance there is a fetch of a mile or more into the winter winds. A comparison between 1938 and 1967 aerial photos indicates that the change is hardly perceptible.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: There is one 100-foot wooden bulkhead and 2 cement block bulkheads, each about 50 feet long, located on the north side of the creek. Their purpose is probably to contain fill.

OTHER SHORE STRUCTURES: There are approximately 15 piers and wharves on the creek, mostly on the north bank, 3 or 4 boat skidways or railways on the north side, and one launching ramp on the south side. In addition, there are 5 platforms with small buildings and adjoining catwalk enclosures off the north side of the creek at Chesconessex. Their purpose is to contain crab floats and associated paraphernalia of the crab industry.

NAVIGABILITY

APPROACHES: The approach channel trends more or less east to west. It is well marked by buoys and day beacons with a controlling depth of 8 feet.
INLET: The channel turns sharply south, but is marked with beacons and stakes. There are shoals to 4 feet here and care must be taken to remain in the channel as 1-foot depths prevail either side.
CREEK: Depths of 4 to 6 feet hold past the villages and the channel is marked by several day beacons. Depths in the upper creek rapidly decrease to 1 or 2 feet.

POTENTIAL USE ENHANCEMENT: Low. The surrounding land is too low to advise increased residential development. The creek is not really suitable for casual yachting traffic. It is limited somewhat by the confusing and narrow channel entrance.

MAPS: USGS, 7.5 Min.Ser. (Topo.), PUNGOTEAGUE and CHESCONESSEX Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 100ct72 AC-8A-101, AC-8B-102 to 104, AC-8C-105;
VIMS 9Apr73 AC-8A-456, AC-8B-457, AC-8C-458, 611, AC-8B-612 to 652.

Ground - VIMS 13Sep73 AC-8B-30G, 31G.

BIG MARSH, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 8C (Maps 7)

EXTENT: 8,000 feet (1.5 mi.) along the shore-fastland boundary between Chesconessex Creek and Deep Creek. The subsegment comprises about 2,545 acres of marshland, partly islands, with a perimeter of approximately 95,000 feet (18 mi.).

SHORELANDS TYPE

FASTLAND: Low shore. Except in the Deep Creek village area, the 5-foot contour is ½ mile or more inland from the fastland-shore boundary.
SHORE: Predominantly extensive marsh (2,523 acres), with some embayed marsh (22 acres); and occasional wooded hummocks, generally in the form of low crescent-shaped ridges ("Carolina Bays") (Photos AC-8C-129 and 131). There are brush covered sand dune areas back of the beach along many of the northwest, west, and southwest facing shores. Sand spits occur at Beach Island and Tobacco Island (Photos AC-8C-114, 116, 109). Including the spits, there is about 25,000 feet of sand beach within the subsegment. Of the extensive marsh, an estimated 125 acres have been filled, canaled and partially developed (Schooner Bay) in the Factory Point area north of Chesconessex village.
NEARSHORE: Generally wide, except where creek channels approach the shore. Mostly very shallow, with extensive interfingering with the marsh shore. Bottom is sandy, except muddy in small restricted basins. Sub-parallel sand bars extend some 1,500 yards off the northwest and southwest facing beaches. Bottom contours converge at Beach Island Shoal (see Chart #568), forming a (2,000 yards long) shallow point off Beach Island.

SHORELANDS USE

FASTLAND: Unmanaged, wooded (80%), and residential development (Schooner Bay) in the Factory Point area (20%).
SHORE: Residential development on marsh fill at Factory Point, hunting, and very limited beach recreation as the beaches are not accessible to the general public.
NEARSHORE: Sport fishing, commercial fishing and shellfishing, and boat transit to and from adjacent creeks.

OFFSHORE BOTTOM: The bottom seaward of the nearshore zone steepens sharply from 12 - 18 feet to 80 - 90 feet in lower Pocomoke Sound, particularly near Beach Island Shoal.

WIND AND SEA EXPOSURE: Shorelines in the subsegment are oriented about equally NW - SW, and again NW - SE from south to north around the marshlands. The fetch from the NE is 6 nautical miles, from the N is 9 miles, from the NW is 6 miles, from the W is 3 miles and from the SW is 27 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, critical to the development at Factory Point due to storm surge from the bay. The buildings are placed only 3 or 4 feet above mean sea level. There is no bulkheading along the canal banks in the development (Photos AC-8C-33G and 34G), and storm erosion might be severe.

WATER QUALITY: Satisfactory.

BEACH QUALITY: There are fine beaches on Beach Island and fair to good beaches elsewhere on the shores facing the sound, but they are almost totally inaccessible to the general public.

SHORE EROSION SITUATION

EROSION RATE: Moderate, noncritical at present but the development area might become critical during floods. The VIMS historical study shows variable rates from 0 to 3 feet per year, particularly in the sand beach areas (see Photos AC-8C-122 and 123).
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: For the general area no action is recommended because any effective action would be economically infeasible. However, in the Schooner Bay Development area, it is recommended that the developers bulkhead or riprap the shoreline.

OTHER SHORE STRUCTURES: There is a boat launching ramp at Factory Point (Schooner Bay), one or two alongside piers in the canals of the development. There is a pier alongside the canal to landward of Beach Island, with a catwalk leading across the marsh from the pier to the camp on Beach Island.

POTENTIAL USE ENHANCEMENT: Minimal. There is not enough fastland behind the marsh between Chesconessex and Deep Creek for any sort of development other than low density residential or agricultural. The present development at Schooner Bay was probably unwise. No other development on the marshes should be permitted, both because of the low elevation and unstable substrate and because of the value of the natural marsh to the estuarine food chain.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CHESCONESSEX Quadr., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 10Oct72 AC-8C-105 to 131;
VIMS 9Apr73 AC-8C-458 to 462, 600 to 611.

Ground - VIMS 13Sep73 AC-8C-32G to 34G.

DEEP CREEK, ACCOMACK COUNTY, VIRGINIA

SEGMENT 9 (Maps 8)

EXTENT: Area - For this report, Deep Creek is considered to be bounded on the Pocomoke Sound side by a line drawn between the easterly extremity of Savage Island in Big Marsh, and Custis Point in Subsegment 10A to the east. The enclosed area of the creek is 520 acres. Length - The mid-creek length is 4 miles. The head of the creek, located 0.8 miles west of Bayside is 6 miles from the 12-foot depth contour in Pocomoke Sound. Within the fastland-shore boundaries of the adjacent subsegments, the creek is $2\frac{1}{2}$ miles long and the perimeter is $6\frac{1}{2}$ miles.

SHORELANDS TYPE

FASTLAND: Low shore. All elevations in the lower creek area are below 10 feet, many below 5 feet. On the upper creek slopes are steeper and occasionally rise to 15 feet.

SHORE: The extensive marshes of the adjacent segments border the outer parts of Deep Creek. Within the fastland, fringe marsh occupies 5 miles, about 18 acres (77%) (Photos AC-9-37G, 38G) and embayed marsh occupies 51 acres (13%). There is less than 100 feet of sand beach within the subsegment.

CREEK: A submerged meander pattern with no significant branches. This shallow creek trends north to south.

SHORELANDS USE

FASTLAND: Agricultural frontage on the creek is 5.4 miles (83%); unmanaged, wooded 0.4 miles (6%); unmanaged, open 0.3 miles (5%); commercial 0.3 miles (5%); residential 0.1 miles (1%).

SHORE: Access to boats, piers and moorings, crab float storage, and pound net fishing (outer creek).

CREEK: A port for the crabbing industry on the Eastern Shore, some yachting, and pound net fishing in the outer creek.

OWNERSHIP: Private.

FLOOD HAZARD: High, critical. The creek is open to the north to flood surge from Pocomoke Sound and Chesapeake Bay. The land is low and many of the residences in Deep Creek area are located on land lower than 5 feet above sea level.

WATER QUALITY: Satisfactory for most of the segment, but there are portions of Hunting and Deep Creeks that have been determined unsatisfactory.

BEACH QUALITY: Poor. The only sand beach is less than 100 feet long, is located at a private residence in Deep Creek village. It was probably formed by removing the marsh grass.

SHORE EROSION SITUATION

EROSION RATE: Slight to none, noncritical. There may be slight erosion on the northerly facing shores of the outer creek.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There is about 500 feet of wooden bulkhead at the north side of Deep Creek village retaining fill for the wharf. About 150 feet of the bulkhead is in a deteriorating condition, but the remaining 350 feet is in good shape (Photo AC-9-35G).

OTHER SHORE STRUCTURES: There are 9 or 10 fish trap fences extending from the marsh shore at the west side of the creek entrance (south of Savage Island). There are some 14 piers and wharves in the creek, mostly at the village (Photo AC-9-36G), and 4 large crab float enclosures in the creek near the village. There is one boat-launching ramp and a small marine railway on Deep Creek.

NAVIGABILITY

APPROACHES: A crooked, natural channel leads from Pocomoke Sound, just north of Beach Island Shoal to the inlet of Deep Creek. The controlling depth of the channel is 8 feet and is marked by lights and buoys.

INLET: The inlet is long and narrow, with a dredged channel of $3\frac{1}{2}$ feet. The channel is marked by day beacons and some lights.

CREEK: The $3\frac{1}{2}$-foot channel extends only to a turning basin at the village of Deep Creek. Elsewhere depths inside the creek are only 1 or 2 feet.

POTENTIAL USE ENHANCEMENT: Low. The limited area and shallow depth of the creek, together with the dependence of the local people on the crab industry, restricts the creek's potential for development of additional marine activities. The high flood hazard of the low elevations render the fastland unsuitable for increased residential development.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CHESCONESSEX, PARKSLEY and ACCOMAC Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 10Oct72 AC-9-132, AC-10A-133; VIMS 9Apr73 AC-8C-462, AC-9-463 to 466, 576 to 599.

Ground - VIMS 13Sep73 AC-9-35G, 36G;
VIMS 20Sep73 AC-9-37G, 38G.

WEBB ISLAND, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 10A (Maps 9)

EXTENT: 12,800 feet (2.5 mi.) along the shore-fastland boundary between the east bank of Deep Creek and the northeast bank of Hunting Creek. Doe Creek and Hunting Creek are included in this subsegment as are Webb Island and Halfmoon Island. There is a total shoreline of approximately 12 miles in the subsegment.

SHORELANDS TYPE

FASTLAND: Low shore with a very gentle slope inland, incised by Doe Creek and Hunting Creek, which extend about 1 mile and 1½ miles into the fastland.

SHORE: Extensive marsh comprises a total of 668 acres of which 552 are on the mainland and 116 on the islands in the nearshore zone. There are 35 acres of embayed marsh within the creeks, and approximately 12 acres of fringe marsh border Doe and Hunting Creeks. There is about 9,000 feet of sand beach on Halfmoon and Webb Islands, amounting to about 14% of the shoreline. The rest is almost entirely marsh-peat shore.

NEARSHORE: Wide. There are areas of parallel bars about 1½ nautical miles west of Halfmoon Island. The shallow, nearshore area is hook-shaped and is skewed off to the southwest, bounded by the channels to Deep Creek and Hunting Creek. The bottom is generally sandy and hard. The creeks are, for the most part, shallow and muddy, but there is a channel of 7 feet nearly to Hopkins on Hunting Creek, and 2½ feet to the wharf. Depths appear shallow on the chart, but there is considerable small boat traffic ½ mile above Hopkins (Photo AC-10A-571).

SHORELANDS USE

FASTLAND: Unmanaged, wooded (70%), agricultural (27%), residential (2%), and commercial (1%).

SHORE: Hunting in the marshes, boat access and storage on the creeks.

NEARSHORE: Sport fishing, commercial shell-fishing, boat traffic to Hunting Creek.

OFFSHORE BOTTOM: Pocomoke Sound, with depths to 76 feet in the channel, but shoaling rapidly shoreward, lies off the subsegment. Off Halfmoon Island, the sound has widened to about 8 miles from a width of 2½ miles between Beach Island Shoal and Watts Island. Average depths are 15 feet and the bottom is usually muddy.

WIND AND SEA EXPOSURE: The marshland shore mostly faces the NW, and the island arc is oriented more or less N - S. The principal fetch is 8 nautical miles from the northwest, from the N the fetch is 3 miles, and from the W is 6 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical over most of the subsegment, but it is critical at Hopkins where there are over three dozen homes and trailers situated on land below the 5-foot contour. There has been a history of past flooding in the area, with water levels reaching nearly to the second floor of substantial homes near the shore. There is nearly a clear reach through The Thorofare, approach to Hunting Creek, to Hopkins.

WATER QUALITY: Satisfactory.

BEACH QUALITY: There is several thousand feet of good, sand beach on Halfmoon Island and the northerly part of Webb Island. They are inaccessible except by small boat.

SHORE EROSION SITUATION

EROSION RATE: Slight to none. The VIMS historical survey shows an erosion rate of 1 foot per year near Custis Point. Halfmoon and Webb Islands are not indicated in the survey, but seem to have remained the same. (Photo AC-10A-569).

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There are three groin-like structures on the beach of the small island at the north end of Webb Island. They seem to be entirely on the beach though, and may be some sort of temporary beach recreation structure. On Doe Creek there is one 100-foot, cosmetic bulkhead on the north bank, which may retain some artificial fill, and serves as a boat mooring for the property owner. (Photo AC-10A-39G). At Hopkins, on Hunting Creek, there is a new, wooden, cosmetic bulkhead retaining fill over the marsh (Photos AC-10A-46G, 47G). Further up the creek at Real Point, Route 670, there is a 75-foot, concrete bulkhead, and about 75 feet of stone riprap either side (at right angles). Storm waves hit the bulkhead with sufficient force here to require a wooden spray shield above the wall (Photos AC-10A-569 and 43G). An earthen and rubble riprapped dike has been built at the head of a small arm of the creek, also at Route 670, to protect against flooding into the fields beyond.

OTHER SHORE STRUCTURES: There are about 9 finger piers and one stone wharf on Hunting Creek. There is a private boat ramp at Hopkins and a public ramp and small railway off Route 670.

POTENTIAL USE ENHANCEMENT: Low. The low elevations in the subsegment discourage any further residential development in the area. The channel is adequately marked into Hunting Creek for local use, but with other more accessible creeks nearby, there seems to be no incentive for development of marina activity. Lumber production in the fastland and some agriculture on the higher ground appears to be the best use for the shorelands in this subsegment. Unfortunately, the good beaches on the islands are not accessible to the general public.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CHESCONESSEX and PARKSLEY Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 10Oct72 AC-10A-133 to 143;
VIMS 9Apr73 AC-10A-466 to 475, 562 to 575.

Ground - VIMS 20Sep73 AC-10A-39G to 49G.

PARKSLEY, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 10B (Maps 9)

EXTENT: 16,000 feet (3.0 mi.) along the shore-fastland boundary between the north bank of Hunting Creek and the middle of Young Creek. There are about 15 miles of shoreline in the subsegment, including Dix Cove, Bagwell Creek, Little Back Creek, France Creek, Bagwell Cove, and Cedar Cove.

SHORELANDS TYPE

FASTLAND: Low shore, very gently sloping, penetrated by Bagley Creek near Parker Landing.

SHORE: Extensive marsh - 1,468 acres (99%), incised by several creeks and coves, embayed marsh - 20 acres (1%). Along the shore there are 5,500 feet of scattered sandy beaches, most notably at Jacks Island, Simpson Bend and Jobes Island.

NEARSHORE: Wide. There is a series of irregular flats, running generally northeast to southwest, of greater depth toward Pocomoke Sound channel, and interrupted by channels 10-11 feet deep. The creeks are all shallow and unmarked except for the nearshore approaches to Young Creek. The nearshore flats are sand and mud, the creek bottoms are muddy.

SHORELANDS USE

FASTLAND: Unmanaged, wooded, agricultural behind.

SHORE: Hunting on the marsh, and boat landings at Dix Cove and on Young Creek.

NEARSHORE: Sport fishing, shellfishing, and minor boat traffic to the creeks.

OFFSHORE BOTTOM: Pocomoke Sound channel extending northeast to southwest, lies 5-6 nautical miles offshore. Depths greater than 12 feet are restricted to a channel a mile or less wide.

WIND AND SEA EXPOSURE: Orientation of the bay-front shores is NNE - SSW. The fetch from the NW is 8 miles, and from the W is 11 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical, in general, as there are no permanent residences in the subsegment, except at the Hopkins vicinity (considered in the discussion of 10A).

WATER QUALITY: Satisfactory.

BEACH QUALITY: Fair. The beaches in the subsegment are of medium width, with good white sand, but they are inaccessible by land.

SHORE EROSION SITUATION

EROSION RATE: Slight to moderate, critical along the bay shore. The VIMS historical survey shows up to 2 feet per year at various exposed sand beach areas. There is no erosion noted in the creeks.

ENDANGERED STRUCTURES: There are three or four hunting camps located near the bay shore which are endangered.

SHORE PROTECTIVE STRUCTURES: There is a 150-foot bulkhead at the head of a dredged boat basin off Dix Cove, and 100 feet of wooden bulkhead at the boat landing at the end of Route 676. These are primarily to protect against slumping due to tidal or boat action where man has altered the creek banks.

OTHER SHORE STRUCTURES: There is a dug canal and boat basin (about 500 feet long) off Dix Cove northwest of Hopkins; (Photos AC-10B-176, 561). There are remnants of small, alongside piers at Route 674 on Bagwell Creek, and a small finger pier at the camp on Ebb Point. At the end of Route 676 on Young Creek there are a boat launching ramp, 3 finger piers, a boat skidway, an alongside pier and some bulkheading (Photos AC-10B-599, 50G to 52G). Nearby there are small foot bridges across small channels in the marsh to reach various boat moorings (Photos AC-10B-482, 560).

POTENTIAL USE ENHANCEMENT: Low. The area is primarily marshland which should be preserved as a primary food source for shore and nearshore life. The adjoining fastland is low and suitable for lumber and agriculture.

MAPS: USGS, 7.5 Min.Ser. (Topo.), PARKSLEY Quadr., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 10Oct72 AC-10A-143; AC-10B-144 to 159;
VIMS 9Apr73 AC-10B-476 to 483, 559 to 561.

Ground - VIMS 20Sep73 AC-10B-49G to 52G.

GUILFORD CREEK, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 10C (Maps 9 and 10)

EXTENT: 20,000 feet (3.8 mi.) along the shore-fastland boundary between the middle of Young Creek and the middle of Muddy Creek. The shore perimeter of the subsegment, including the shores of the larger creeks and coves is about 8½ miles.

SHORELANDS TYPE

FASTLAND: Low shore, with the 5-foot contour generally about ½ mile back from the marsh except in the Guilford Creek area. Guilford Creek bisects the area.

SHORE: Extensive marsh - 1,198 acres (96%), embayed marsh - 52 acres (4%), and a minor amount (2 acres) of fringe marsh. The shore area is split by Guilford Creek, which extends into the fastland to Guilford, and is incised by several coves and guts. There are a few low, arcuate, wooded ridges associated with the "Carolina Bays" located in the shore zone. There is 2,000 feet of sand beach at Guard Shore. Elsewhere the shoreline is marsh-peat.

NEARSHORE: Wide, shallow (4 to 6 feet deep), but with a 7 to 10-foot channel to Beasley Bay from the creeks. The channel continues out to Pocomoke Sound, running south of Guilford Flats.

SHORELANDS USE

FASTLAND: Unmanaged, wooded, agricultural behind.

SHORE: Hunting on the marsh, boat landings on Guilford Creek.

NEARSHORE: Sport fishing, shellfishing, and boating.

OFFSHORE BOTTOM: Pocomoke Sound lies 6 to 7 miles northwest of Guard Shore. Channel depths do not exceed 30 feet.

WIND AND SEA EXPOSURE: The beach orientation on the bayward shore is NE - SW. The NW fetch is 2 nautical miles from the Bernard Islands.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical. The few residences in the subsegment are located well inland even though they are on fairly low ground.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Fair at Guard Shore. The northerly 1,000 feet is narrow, the sand is coarse, and there is rubble riprap. The southerly part is fair and easily accessible by road (Route 684). (Photos AC-10C-61G and 64G). There are about 200 feet of narrow, sand beach on Guilford Creek at the end of Route 800, but the bottom is not particularly desirable for wading or swimming. (Photos AC-10C-548, 53G)

SHORE EROSION SITUATION

EROSION RATE: The VIMS historical erosion study gives no indication of erosion in the subsegment. The sand beaches at Guard Shore and on Guilford Creek at Route 800, together with their orientations toward the bay, indicate some erosion, but it is slight, and not measurable between 1938 and 1967 air photos.

ENDANGERED STRUCTURES: No buildings are in danger, but the road at Guard Shore has been riprapped.

SHORE PROTECTIVE STRUCTURES: At the end of Route 675 on Guilford Creek there is about 50 feet of rubble riprap around the pierhead to the west of the road and some 400 feet of wooden bulkhead running along the face of the property to the east of the road. (Photos AC-10C-536, 59G and 60G). These seem fairly effective in reducing minor erosion in the area. At Guard Shore there are 600 feet of concrete rubble riprap along the side of the road facing Beasley Bay which seems effective. On the inside shore, in Old Cove, there is a wooden bulkhead of 50 feet in length to hold sand from sweeping around the corner into the boat ramp. This is being overwhelmed and needs repair. (Photos AC-10C-61G and 63G). On Muddy Creek, at the end of Route 683, there is about 50 feet of wooden bulkheading in a small boat slip.

Suggested Action: The above structures appear adequate at present, except for the bulkhead at Guard Shore. This needs replacing with a more substantial bulkhead or a short jetty to keep sand from overwhelming the launching ramp. Alternately, the sand building up in the inside might be occasionally pumped or dredged and replaced on the bayward shore to improve the beach.

OTHER SHORE STRUCTURES: At the end of Route 800 there is a finger pier and several primitive boat skidways. At the end of Route 675 there is a long finger pier, a short pier and a mud boat launching ramp. A ¼ mile farther up the creek is another short pier. At Guard Shore there is a good, paved boat launching ramp, with finger piers either side. (Photo AC-10C-63G). There are numerous moorings in Old Cove and some crab floats. On the south side of Muddy Creek there is a small boat slip with alongside piers and a small footbridge crossing near the head of the slip to a cottage. (Photo AC-10C-65G). At several points along the creeks there are log skidways for hauling boats.

POTENTIAL USE ENHANCEMENT: Low. The marshland should be preserved as a food source for aquatic life. The creeks are too shallow for more extensive boat use and the fastland is too low for residential development. If local demand arose, improvements could be made at Guard Shore to both the beach area and the picnic area.

MAPS: USGS, 7.5 Min.Ser. (Topo.), PARKSLEY Quadr., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 10Oct72 AC-10B-159, AC-10D-160;
VIMS 9Apr73 AC-10B-483, AC-10C-484 to 489, 536 to 553, 556.

Ground - VIMS 20Sep73 AC-10C-53G to 65G.

BYRDS MARSH, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 10D (Maps 10)

EXTENT: Approximately 3,500 feet (0.7 mi.) along the shore-fastland boundary between the middle of Muddy Creek and Cattail Creek. The shoreline perimeter is about 7½ miles, not including minor coves. The Bernard Islands are included in the subsegment, lie 1½ miles west of the mainland marshes.

SHORELANDS TYPE
FASTLAND: Low shore, very little of the fastland area is above 5 feet.
SHORE: Extensive marsh - 1,607 acres, including 14 acres on lower Bernard Island and 3 acres on Upper Bernard Island. There are a few arcuate, wooded ridges with up to 5-foot elevations scattered through Byrds Marsh ("Carolina Bays"). There are medium to narrow sand beaches around the islands, but none on the mainland.
NEARSHORE: Wide, shallow and sandy. It extends to Guilford Flats, 4 nautical miles westsouthwest of the mainland shore.

SHORELANDS USE
FASTLAND: Unmanaged, wooded.
SHORE: Hunting, fishing in the channels, and boating.
NEARSHORE: Sport fishing near the outer margin and shellfishing.

OFFSHORE BOTTOM: Pocomoke Sound, with depths averaging only 15 feet, is 3½ nautical miles wide off Byrds Marsh.

WIND AND SEA EXPOSURE: Shore orientation is NW - SE to NE - SW. Fetch from the NW is 7½ miles, from the W is 7 miles, and from the SW is 8 miles. These are all over fairly shallow water.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical. There are a few camps located on the marshes, but no permanent residences.

WATER QUALITY: Satisfactory.

BEACH QUALITY: There are no beaches on the mainland. Those on the Bernard Islands are fair to good, but inaccessible.

SHORE EROSION SITUATION
EROSION RATE: Slight to none, noncritical except on the exposed parts of Byrds Marsh where the VIMS historical erosion survey shows moderate erosion of 1 to 2 feet per year.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None.

OTHER SHORE STRUCTURES: On upper Muddy Creek, attempts have been made in the past year or two to dredge canals and make a development on the marsh. There is a good boat launching ramp and a good finger pier on the creek, but the canals appeared abandoned in the fall of 1973. Three buildings had been erected in the area (Photos AC-10D-490, 535, 66G to 69G). An older building with a short alongside pier are located a few hundred feet down stream.

POTENTIAL USE ENHANCEMENT: Low. The fastland is too low for residential development and the marsh should be retained in its natural state as a bank for aquatic food supplies. Such developments as have been attempted at the end of Route 685 should be discouraged.

MAPS: USGS, 7.5 Min.Ser. (Topo.), PARKSLEY and SAXIS Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 10Oct72 AC-10D-161, 162;
VIMS 9Apr73 AC-10D-490 to 492, AC-11A-529, AC-10D-530 to 535.

Ground - VIMS 20Sep73 AC-10D-66G to 69G.

MICHAEL MARSH, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 11A (Maps 11)

EXTENT: Approximately 10,000 feet (1.9 mi.) along the shore-fastland boundary between Cattail Creek and Messongo Creek. The shoreline perimeter is about 10 miles, excluding the smaller coves and bends in the creeks.

SHORELANDS TYPE
FASTLAND: Low shore. The 5-foot contour is 1 to 2 miles inland from the marsh boundary.
SHORE: Extensive marsh - 2,189 acres (99%) with occasional wooded, arcuate ridges, some reaching 5 feet, and embayed marsh - 28 acres (1%). There is only about 500 feet of thin sand beach, located on Messongo Creek, one stretch near South Point and another opposite Dicks Point.
NEARSHORE: Wide. It is 4 to 5 miles to Pocomoke Sound channel. Natural channels, with depths to 8 feet, approach Messongo and Cattail Creeks across the nearshore. Deeper spots are muddy, shoal areas are hard sand.

SHORELANDS USE
FASTLAND: Unmanaged, wooded (80%), and agricultural (20%).
SHORE: Wildlife sanctuary.
NEARSHORE: Sport fishing in the outer part, shellfishing, and a minor amount of boat traffic into the creeks.

OFFSHORE BOTTOM: Pocomoke Sound lies about 7 miles to the west. It has a width of about 2 nautical miles in the offshore part and maximum depths of 26 feet.

WIND AND SEA EXPOSURE: The main shoreline trends in the subsegment are NE - SW and NW - SW. Fetch from the SW is 6 nautical miles, from the W is 9 miles, from the NW is 1 to 2 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical. No structures are noted in the shore area. Fastland residences, although they are low, are shielded by a wide expanse of marsh and some fastland.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Poor. There is a very limited amount of narrow and thin sand beach frontage on Messongo Creek. The creek bottom is not particularly attractive to bathing, and the sites are inaccessible.

SHORE EROSION SITUATION
EROSION RATE: Moderate, noncritical. The VIMS historical erosion study shows an erosion rate of 1.3 to 1.7 feet per year along that part of the shore facing Beasley Bay. Comparison of aerial photographs since 1938 show little indication of recent erosion.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None.

OTHER SHORE STRUCTURES: There is one alongside pier and a nearby footbridge on a branch off Cattail Creek at the end of Route 792 (Photo AC-11A-70G). No other structures were noted on the shore of the subsegment.

POTENTIAL USE ENHANCEMENT: Low. Almost the total marsh is set aside as part of the Saxis Wildlife Management Area. The adjacent fastland area is low and suitable for timber production. The creeks are shallow and, being within or adjacent to the wildlife sanctuary, should not be exploited.

MAPS: USGS, 7.5 Min.Ser. (Topo.), SAXIS and PARKSLEY Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 100ct72 AC-10D-161, AC-11A-162 to 164;
VIMS 9Apr73 AC-10D-492, AC-11A-493 to 497, AC-11B-498, AC-11A-529.

Ground - VIMS 20Sep73 AC-11A-70G.

FREESCHOOL MARSH, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 11B (Maps 11 and 12)

EXTENT: Approximately 25,000 feet (4.7 mi.) along the shore-fastland boundary between Messongo Creek and Holdens Creek. The shoreline perimeter is about 19 miles, omitting smaller coves. This subsegment comprises the peninsula south of Pocomoke Sound, on which the town of Saxis is located. It is bounded on the east by Route 698 which runs north from Tims Point on Messongo Creek to near the mouth of Holdens Creek.

SHORELANDS TYPE
FASTLAND: Low shore. Except in the northern third, the 5-foot contour is a mile or more back from the marsh edge. The central prominent feature of the fastland is an arcuate, low-relief ridge system over a mile in diameter (a "Carolina Bay"), with marsh in the middle and habitations built along the ridges.
SHORE: Primarily extensive marsh - 3,900 acres (87%), embayed marsh - 103 acres (2%), fringe marsh in scattered reaches - 4 acres (1%), isolated fastland area of Saxis Island on the western side of Freeschool Marsh - 250 acres (6%), and various sand areas in the southwestern part of the subsegment - 200 acres (4%). There are numerous ponds and streams throughout the marsh area and occasional wooded hummocks. Sand beach, of varying width, length and quality occupies about 23,000 feet of the shoreline. About 13,000 feet occur on the westerly shores, about 600 feet on the southerly shore (on Beasley Bay), and 9,300 feet on the northerly shore between Robin Hood Bay and Holdens Creek.
NEARSHORE: Wide. All of Pocomoke Sound north of Long Point is shallower than 12 feet and is thus considered as nearshore area. This is also true of Beasley Bay to the south of the subsegment. The bottom is generally hard sand or shell except in embayments such as Drum Bay, Back Creek, Starling Creek and Robin Hood Bay where it is muddy. Directly off the beach at Saxis there are 4 or 5 series of sub-parallel sand bars.

SHORELANDS USE
FASTLAND: In the mainland area, unmanaged, wooded (69%), and agricultural (29%). On Saxis Island, residential (4%), and commercial (10%).

SHORE: About 80% of Freeschool Marsh is a wildlife management area. Also there is access to boats, shore recreation (campground east of Flag Pond Landing), and the shellfish industry. Piers occur at Hammock Landing, Starling Creek, the inlet off Robin Hood Bay, and Shad Landing.
NEARSHORE: Fishing, shellfishing, and boating.

WIND AND SEA EXPOSURE: The predominant shoreline trends are E - W, SW - NE, and E - W again. The fetch from N is 1 to 2 miles, very shallow, from NW is 3 to 4 miles, shallow, from W is 5 miles, and from SW is 9 to 10 miles.

OWNERSHIP: Private.

FLOOD HAZARD: Medium, critical in the Saxis area, where most residences are above 5 feet elevation, but seldom above 7 feet. At the north end of town and in the marshes in general the hazard is high, and critical to those residences and shoreside shellfish industries located barely 2 or 3 feet above mean sea level. Surge from large storms could inundate the marsh and effectively cut Saxis off from the rest of the county. In the low fastland area near Sanford, homes are also in some danger of flooding, but there is considerable buffer zone between them and the open water.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Although inaccessible, the best beaches are in the vicinity of Long Point at the southwest extremity of the subsegment. Beaches along the Saxis waterfront are poor, narrow and debris-laden (Photos AC-11B-89G, 90G). This is also true of the beach areas between Flag Pond Landing and Holdens Creek (Photos AC-11B-110G, 112G).

SHORE EROSION SITUATION

EROSION RATE: Severe to moderate, generally not critical along the exposed shores of the subsegment. The VIMS historical erosion survey shows erosion rates of 3.2 feet per year between Pig Point and North End Point, 4.9 feet per year between North End Point and Starling Creek, (Saxis waterfront), 3.6 and 4.4 feet per year between Starling Creek and Long Point, and 1.9 feet per year between Long Point and Back Creek. There has been a small amount of accretion in the subsegment. The northeast trending spit east of Long Point has grown between 1959 and 1967, and the spit southeast of North End Point has increased in length to the southeast by about 200 feet since 1938, but it has decreased in width in that time.

ENDANGERED STRUCTURES: Severe erosion on both sides of the spit southeast of North End Point has endangered the house at that location. A camp at the east side of Starling Creek is also on the very edge of the bank and any amount of erosion there might cause it to collapse.

SHORE PROTECTIVE STRUCTURES: There is 1,100 feet of plank and pile bulkheading in Starling Creek at Saxis. (Photo AC-11B-97G). On the Sound side, another 700 feet of wooden bulkhead runs northeast from Starling Creek entrance. These bulkheads are in good condition, but the northeast end of the sound side bulkhead is being flanked. Attempts have been made to retard the flanking by placing trash riprap in the affected portion. The spit southeast of North End Point is subject to erosion on both sides. Three plank groins are located on the outside near the house. These were effective in the past, but 2 have been flanked and are now derelict. (Photo AC-11B-200). Inside the spit there is about 100 feet of partially successful bulkheading protecting the house. Remains of older bulkheading lie off-shore from the present bulkhead. (Photo AC-11B-200). At the head of the cove formed by the spit there is a 75-foot heavy timber bulkhead, used to retain shore fill. At Flag Pond Landing there are 3 or 4 plank groins, two new, the others in disrepair, plus about 150 feet of rotting bulkhead with trash-rubble riprap behind. (Photos AC-11B-212, 105G to 108G). About 500 feet east of the ramp at Flag Pond Landing there is approximately 150 feet of plank bulkhead with heavy concrete riprap in front and a groin extending out from the point. The riprap and bulkhead appear to be effective, the groin is useless. A very rudimentary but ineffective bulkhead and groin system has been attempted at Tall Pines Campground.

Suggested Action: There is a major erosion problem at Saxis and a detailed study is needed to determine the best course of action. Without a coordinated plan, the remedial measures now employed will require constant maintenance.

OTHER SHORE STRUCTURES: At Tims Point on Messongo Creek (end of Route 698) there are two finger piers, and a primitive boat launching ramp, useful only at high water. (Photos AC-11B-71G and 72G). At Hammock Landing (end of Route 788) there is a good paved ramp with a short bulkhead at the downstream side. There are two or three crab industry operations with a half dozen piers, some equipped with lights and holding trays for peelers and soft shell crabs. Nearby are boat skids for maintenance of smaller boats (Photos AC-11B-528, 74G to 79G). At Starling Creek, Saxis, in addition to the before-mentioned bulkhead, there is another 200 feet or so leading toward the inner basin in fair condition, and about 500 feet of the westerly side of the inner basin is bulkheaded. There are 24 finger piers and dolphins for tying up small craft in the basin. (Photo AC-11B-101G). There is a good paved and bulkheaded boat launching ramp on the harbor just inside the Starling Creek entrance (Photo AC-11B-191G). At North End Point canals were dug a few years ago for a development, but were abandoned (Photo AC-11B-183). There are boat skids on the beach inside North End Point (Photo AC-11B-84G). Southeast of North End Point on Robin Hood Bay there is an entrance canal to a channel alongside the highway (Photo AC-11B-201). There is some crude bulkheading on the southeast side of the entrance canal and fair bulkheading along the canal paralleling the road (Photos AC-11B-80G to 82G). The bulkheading on the far side of the canal from the road is poor. There is a public launching ramp at Shad Landing, an oyster shucking plant and a bulkheaded boat slip (Photos AC-11B-102G to 104G). At Flag Pond Landing there is a crude boat launching ramp, paved with concrete blocks, suitable for launching at only high water.

POTENTIAL USE ENHANCEMENT: Low. Nearly the whole of Freeschool Marsh is set aside as a wildlife refuge. Saxis Island is very limited in area, has no satisfactory beaches, and is probably developed to near its maximum for shellfish industry and supporting population. Camping facilities are being developed on the fastland near the shore in the northeastern part of the subsegment, and could perhaps be increased, but the adjacent beaches are poor. The one area of potential development may be in increasing the

yachting trade at Saxis. The inner boat basin is suitable for this, and shore facilities including showers, stores and restaurants might be developed.

MAPS: USGS, 7.5 Min.Ser. (Topo.), SAXIS Quadr., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 100ct72 AC-11A-164, AC-11B-165 to 183, 201 to 213;
VIMS 18Dec72 AC-11B-498 to 511, 528.

Ground - VIMS 27Sep73 AC-11B-71G to 112G;
VIMS 310ct73 AC-11B-190G, 191G.

JOLLEYS NECK, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 11C (Maps 12, 13, and 14)

EXTENT: Approximately 26,000 feet (4.9 mi.) along the shore-fastland boundary from Holdens Creek to the Virginia - Maryland border.

SHORELANDS TYPE
FASTLAND: Low shore, penetrated by long, winding creeks in the northerly half, smaller creeks to the south. The 5-foot contour lies near the marsh edge, the 10-foot contour is well back, usually a mile or more.
SHORE: Total marsh comprises 2,543 acres. Extensive marsh with some fastland "islands" comprises 1,818 acres (72%), embayed marsh on the creeks penetrating the fastland - 716 acres (27%), and fringe marsh bordering parts of the creeks - 9 acres (1%). There is about 500 feet of thin, narrow sand beach in isolated pockets in the southerly third of the subsegment.
NEARSHORE: Pocomoke Sound lies to the west of the lower half of the subsegment. The bottom is shallow and muddy. Depths of less than 6 feet prevail to 3½ nautical miles off the shore. Pocomoke River borders the upper half of the subsegment. Depths range between 10 and 35 feet in the channel, which sometimes occurs close to the bank. The bottom is generally muddy. The creeks are shallow and muddy.

SHORELANDS USE
FASTLAND: Agricultural (75%) and unmanaged, wooded (25%).
SHORE: Hunting, shellfishing, and access to boating.
NEARSHORE: Some fishing and boat traffic, particularly in Pocomoke River.

WIND AND SEA EXPOSURE: The general shore trend is N - S. The fetch from the W in the southerly half is 8½ nautical miles, over shallow water.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical over the marshes; medium, noncritical, in general, in the fastland areas, which are buffered by the marshes. There appear to be no residences below the 5-foot contour.

WATER QUALITY: Most of the waters in this subsegment have been determined unsatisfactory.

BEACH QUALITY: The few beaches in this subsegment are isolated sand pockets, occur back of tidal flats and are inaccessible.

SHORE EROSION SITUATION
EROSION RATE: Slight to none, noncritical. The VIMS historical erosion survey records no erosion of the shores of the subsegment. Comparison between 1938 and 1960 vertical aerial photos does indicate some very slight losses just north of the mouth of Holdens Creek.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: There is about 100 feet of plank bulkheading on Holdens Creek near the end of Route 698, apparently emplaced to retain fill placed on the creek edge. At the end of Route 709 on Pitts Neck there is about 50 feet of concrete rubble riprap protecting the road end against erosion at the bend in the Pocomoke River (Photo AC-11C-116G). There also is about 30 feet of plank bulkhead between the riprap and the boat ramp. For the present, these measures appear adequate.

OTHER SHORE STRUCTURES: In Holdens Creek at Route 698 there are two finger piers and three short marine railways in addition to the bulkhead previously mentioned (Photos AC-11C-113G to 115G). On Pitts Neck, at the end of Route 709, there is a public boat launching ramp into the Pocomoke River, flanked by short, wooden piers (Photo AC-11C-117G).

POTENTIAL USE ENHANCEMENT: Low. There are no beaches, the nearshore is shallow, and extensive marsh lies between a low, flat fastland and the water. The creeks are shallow and winding and not suitable to transient navigation. Agriculture appears to be the best use for the present. Care should be exercised to prevent agricultural wastes from entering the creeks and the sound.

MAPS: USGS, 7.5 Min.Ser. (Topo.), SAXIS and HALLWOOD Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 100ct72 AC-11B-213, AC-11C-214 to 218;
VIMS 9Apr73 AC-11C-512 to 527.

Ground - VIMS 27Sep73 AC-11C-113G to 117G.

TANGIER ISLAND, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 12A (Maps 16)

EXTENT: The Tangier Island subsegment includes Tangier Island, Fishbone Island, Goose Island, Upper Tump and various small neighboring islets. Total island area in 1968 was approximately 1,135 acres, divided as follows: Tangier north of Channel - 431 acres, Tangier south of Channel - 428 acres, East Point Marsh - 110 acres, Cod Harbor Spit - 65 acres, and Goose Island and neighbors 101 acres. Greatest length of the group is about 32,000 feet (6.1 mi.), and maximum width is 9,000 feet (1.7 mi.). The total shoreline length is 36 miles. The island group lies in Chesapeake Bay, 8 nautical miles westnorthwest of the nearest mainland point in the county at Big Marsh.

SHORELANDS TYPE

FASTLAND: Low shore. There are some sand areas on all of the islands, but the principal dry land areas are south of Tangier North Channel. These occur as a series of four north-south "ridges" in the marsh. These range from 1,700 to 6,100 feet in length and up to 1,300 feet wide. Elevations are generally 3 feet or less, and a 5-foot contour is found only in a small area at the north end of Canton Ridge. There are shade trees on the "ridges", elsewhere vegetation is mostly shrubs and herbaceous plants.
SHORE: Extensive marsh - 851 acres (Goose Island - 90, Tangier North - 393, Tangier South - 290, Cod Harbor Spit - 11, East Point Marsh - 67). This comprises 75% of the land area in the subsegment. Sand beach comprises 15% (5½ miles) of the shoreline, which occurs mostly along the west side of the islands; the remainder is marsh.
NEARSHORE: Wide, except the east side, which is intermediate. Average nearshore depth is 9 feet. The approach to Tangier North Channel from the west is dredged to a controlling depth of 5 feet. The approach from the northeast (between the north part of Tangier Island and East Point Marsh) is dredged to a controlling depth of 3½ feet.

SHORELANDS USE

FASTLAND: Residential (80%) and commercial (20%), mostly on the "ridges" of South Tangier Island. Dry areas on the other islands are unmanaged, wooded. There is a small farm on East Point Marsh occupying about 5% of the upland.
SHORE: Crab industry, other commercial and boating interests occupy about 0.9 miles of the shoreline (2.5%), mostly on South Tangier. There are approximately a half dozen pound net installations on the northeast shore of Goose Island, and hunting or fishing camps at the northeast end of North Tangier Island. Surf casting from North Tangier beaches, during the summer and fall.
NEARSHORE: Sport fishing, shellfishing, including an extensive crab industry, and local boat traffic.

OFFSHORE BOTTOM: Deepens gradually, but irregularly, to about 30 feet over a distance of 3½ nautical miles from the western shore. To the south and east ½ to 1 mile offshore, Tangier Sound deepens sharply from 12 to 70 feet. The Chesapeake Bay bottom to the west is mostly hard, sand or shell. In Tangier Sound it is soft mud.

WIND AND SEA EXPOSURE: The island group is roughly triangular, with a N - S trending shore on the west, a NW - SE trending shore at the NE and a NE - SW trending shore at the SE. Cod Harbor Spit trends SW - SE. The western shore has a fetch from the NW of 21 nautical miles, from the W of 11 miles, from the SW of 18 miles, the northeast shore has a NE fetch of 5 miles and the southeast shore a fetch of 9 miles.

OWNERSHIP: Private.

FLOOD HAZARD: Medium, critical except for the uninhabited marshes which are noncritical. Tangier Island is particularly critical where 99% of the residential and business areas of the south island are below 5 feet in elevation. The continued existence of the island community owes itself to the fact that Tangier is an island, and as such, permits storm surge to sweep around its shores, rather than building up as it would against a mainland shore.

WATER QUALITY: Unsatisfactory due to the direct sewage discharge.

BEACH QUALITY: Poor along most of the shores of Tangier. The sand beach, where it exists, is narrow and thin, due to continuous erosion. The sand beaches of Cod Harbor Spit are medium width, being depositional in nature, but also continually shifting eastward. These beaches are rated good, but are presently inaccessible.

SHORE EROSION SITUATION

EROSION RATE: Severe, critical along the west shore of South Tangier Island. Severe also along the west shores of North Tangier and Goose Islands and along the northeast shore of East Point Marsh. The remaining shoreline is more or less stable with the exception of Cod Harbor Spit, which is gradually shifting eastward, while the far end remains fixed in position with minor losses and gains. Comparison between the 1942 and 1968 editions of the USGS Topographic Quadrangles gives an average rate of loss of 13 feet per year on the western shore and 10 feet per year at the northeast side of East Point Marsh. Comparison of the 1968 Quadrangle with recent VIMS aerial photographs (Photos AC-12A-1080 to 1085) indicates that present erosion in the vicinity of the airstrip is approximately 25 feet per year.
ENDANGERED STRUCTURES: The south end of the airstrip, and indeed the southerly part of the West Ridge with its two dozen or more residences, is in considerable jeopardy, if adequate measures are not soon taken to stem the erosion.
SHORE PROTECTIVE STRUCTURES: There were no protective structures along the western shore in September 1973. There is about 2,500 feet of timber bulkhead around the harbor area of Tangier serving both to prevent erosion and to retain fill at the water's edge. At the lagoon entrance at the northwest side of East Point Marsh, there is a 200-foot combination pier and jetty on the southwest side of the entrance and a 300-foot bulkhead on the northeast side. Inside the entrance there is a dock area with another 150 feet of bulkheading. This all appears to be of wood and in good condition.

Suggested Action: The west side of Tangier, particularly South Tangier Island, is experiencing serious erosion. An immediate study needs to be made of the problem, with early recommendations for action. This may take the form of bulkheading or riprapping for the whole length of the island if lasting results are to be achieved. For the immediate future, rip-

rapping at the end of the airstrip should at least deter the loss of part of the runway until a more permanent solution can be applied. No action is recommended for Cod Harbor Spit as it is presently undeveloped, and adequate long term erosion control would be economically infeasible.

OTHER SHORE STRUCTURES: There are a half dozen pound net installations at the northeast side of Goose Island. At the north end of North Tangier Island there is a hunting camp with a pier and a long catwalk across the marsh and shore area (Photo AC-12A-1065). In the harbor area of Tangier there are approximately 24 piers and wharves on the south side of the channel, 4 on the north; a marina north of the airstrip; marine railways or skidways either side of the channel; numerous moorings and about a dozen crab pounds in the harbor either side of the northeast channel (see Photo AC-12A-1076). There are also small piers and landings in the various creeks of South Tangier, and one pier extending northwest inside the hook of Cod Harbor Spit. An overhead power cable extends down the island chain from Maryland to Tangier. Lighted and day beacons mark both entrance channels to Mailboat Harbor at Tangier. Tangier Sound Light is located one nautical mile southeast of Cod Harbor Spit.

POTENTIAL USE ENHANCEMENT: Low. Living area on Tangier is very limited and fully occupied. Development of overnight or extended stay tourist facilities would probably destroy the very culture that makes Tangier interesting to the outsider. Furthermore, the erosion problem is so serious that no steps should be taken to increase the population load on the islands until they can be stabilized. An increase in marina facilities would be the least detrimental development activity that could be undertaken, provided, of course, that refuse disposal could be handled properly.

MAPS: USGS, 7.5 Min.Ser. (Topo.), TANGIER ISLAND, EWELL and GREAT FOX ISLAND Quadrs., 1968; and TANGIER Quadr., 1942.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 18Dec72 AC-12A-219 to 245; VIMS 11Sep73 AC-12A-1057 to 1124.

SMITH ISLAND, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 12B (Maps 15 and 17)

EXTENT: Subsegment 12B includes that part of the Smith Island group south of the Maryland boundary. It is situated on a shoal area extending southward from the eastern shore of Maryland, between Chesapeake Bay on the west and Tangier Sound on the east. It lies 5 nautical miles north of Tangier and 7 nautical miles west of the Maryland shore in the Crisfield area. Included are Cheeseman Island, Shanks Island, Hog Neck, South Point Marsh, Fishing Creek Marsh, Horse Hammock and various small islets associated with the foregoing. Total area is approximately 917 acres. The shoreline length is about 42 miles.

SHORELANDS TYPE
FASTLAND: None exists.
SHORE: Extensive marsh - 866 acres (94%) and sand areas - 51 acres (6%). The marshland is greatly broken up by winding creeks, accounting for the great length of shoreline.
NEARSHORE: Wide, generally sandy or gravelly sand bottom.

SHORELANDS USE
SHORE: Waterfowl hunting.
NEARSHORE: Sport fishing.

OFFSHORE BOTTOM: Chesapeake Bay, with channel depths of 90 to 100 feet lies to the west. The slope from the nearshore zone is gentle to about 50 feet, then somewhat steeper to the channel bottom. Tangier Sound, with depths of 75 to 95 feet, lies to the east. At Tangier Sound the slope is gentle to 18 feet then it is quite steep to the channel bottom. The slope bottoms are generally hard, the channel bottoms muddy.

WIND AND SEA EXPOSURE: The primary island orientation is N - S. Fetch from the NW is 16 nautical miles, from the W is 20 miles, from the SW is 20 miles, from the E is 6 miles and from the SE is 10 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical. Elevations do not exceed 5 feet, but there are no residences on the

islands.

WATER QUALITY: Satisfactory.

BEACH QUALITY: None are accessible to the general public. Of the 12,300 feet of sand beach on Hog Neck, 900 feet are poor. The Cheeseman Islands have 4,400 feet of fair to good sand beach. The Shanks group have fair sand beach for about 7,000 feet.

SHORE EROSION SITUATION
EROSION RATE: Moderate to severe, noncritical. The westerly shorelines are being eroded eastward at 2 to 4 feet per year. Some of the sand derived is being deposited to the south. Both Cheeseman and Shanks Islands have grown south several thousand feet in 30 years. There is no significant erosion on the marshes to the east.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: No action is recommended as the islands are uninhabited.

OTHER SHORE STRUCTURES: A power line traverses the subsegment from north to south on the western side. There is one pier in disrepair at the north end of Cheeseman Island, and there are several pound net installations extending into Spain Cove at the south end of Hog Neck. One fishing camp is located near the water on South Point Marsh near South Point.

POTENTIAL USE ENHANCEMENT: Low. No development of any sort should be considered for this subsegment. The elevations are low, with consequent high flood hazard, and the total area falls within the definition of wetlands.

MAPS: USGS, 7.5 Min.Ser. (Topo.), EWELL and GREAT FOX ISLAND Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 11Sep73 AC-12B-1021 to 1056.

WATTS AND FOX ISLANDS, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 12C (Maps 15)

EXTENT: These islands lie on a shoal which extends southerly from the Crisfield area of the eastern shore of Maryland to a point approximately 8 nautical miles south of the Maryland - Virginia boundary. Tangier Sound lies to the west and Pocomoke Sound to the east. The Fox Islands group including Clump Island (31 acres), Does Hammock (1 acre), Green Harbor Island (5 acres), Great Fox Island (86 acres), and Little Fox Island (6 acres), lie in the upper third of the subsegment. Watts Island (179 acres) lies in the lower third. There is a total shoreline length of approximately 12$\frac{5}{4}$ miles.

SHORELANDS TYPE
FASTLAND: Low shore. The only fastland in the subsegment consists of two short, wooded ridges along the east side of Watts Island. Maximum elevations are 6 feet.
SHORE: Extensive marsh - 187 acres (71%), sand areas 76 acres (29%). The marshland is penetrated by creeks and ponds. Sand beach, mostly narrow and frequently interrupted by peat outcrops, occurs along 16,900 feet of the shoreline in the area. Watts Island has 11,500 feet of sand beach equally divided between the west and the east shores; Little Fox has 600 feet dispersed in several small pocket beaches; the Great Fox group has 2,600 feet of sand beach dispersed along the west shore; and Clump Island has 2,200 feet of sand beach, two thirds of which is along the west shore; the remaining third occurs along the north shore.
NEARSHORE: Wide, generally shoaler than 6 feet in the south, 4 feet in the north. The central third of the subsegment is shoal area, much of it only 2 feet deep. Shoaler areas are sand and gravelly.

SHORELANDS USE
FASTLAND: Unmanaged, wooded.
SHORE: Largely unused. There is one hunting and fishing lodge located near Planner Cove in the Great Fox Islands.
NEARSHORE: Sport fishing, particularly in the vicinity of Watts Island.

OFFSHORE BOTTOM: Pocomoke Sound east off Watts Island is narrow (1 mi.) and deep (95 ft.), with steep slopes. To the northeast the sound fans out and becomes shallower. In the off-shore area the sound is approximately 1 mile with gentle slopes and depths up to 100 feet.

WIND AND SEA EXPOSURE: The general trend of the island group is N - S. NE fetches are 9 to 12 nautical miles; fetches from E are 3 to 9 miles; SE are 4 to 8 miles; S is 10 miles, SW are 5 to 25 miles, W are 4 to 5 miles; and NW are 5 to 6 miles.

OWNERSHIP: Private.

FLOOD HAZARD: Medium, noncritical. The land is generally low and might be overrun by storm surge waters. There are no residences or businesses in the subsegment.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Fair to poor. Almost all of the beaches are erosional, hence thin and narrow. Those on the east shore of Watts Island are debris laden also. The beaches are inaccessible to the general public.

SHORE EROSION SITUATION
EROSION RATE: Moderate to severe, noncritical. The VIMS historical erosion study for the islands of the subsegment indicates a loss of approximately 1 - 2 acres per year for the major islands. A comparison between 1938 photos, the 1968 topographic quadrangles, and the 1973 VIMS aerial photos indicates a considerable loss, particularly in the Little Fox Islands, where the north islet has disappeared completely, leaving only a shoal. It appears that the west shore of Watts Island is eroding at a rate of about 10 feet per year.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: As the subsegment is not inhabited, and there are more pressing erosion problems elsewhere in the segment, no action is recommended.

OTHER SHORE STRUCTURES: There is a hunting and fishing lodge built on pilings on the southeast part of Great Fox Island.

POTENTIAL USE ENHANCEMENT: Low. The islands are small, mostly marsh, eroding rapidly and are comparatively inaccessible. At present it is recommended that no attempts at any form of exploitation or development be considered.

MAPS: USGS, 7.5 Min.Ser. (Topo.), GREAT FOX ISLAND and TANGIER ISLAND Quadrs., 1968.
C&GS, #568, 1:40,000 scale, CHESAPEAKE BAY, Pocomoke and Tangier Sounds, 1972.

PHOTOS: Aerial-VIMS 18Dec72 AC-12C-245;
VIMS 11Sep73 AC-12C-997 to 1020.

MACHIPONGO RIVER, ACCOMACK COUNTY, VIRGINIA

SEGMENT 13 (Maps 28, 29, 30 and 31)

EXTENT: This segment includes those parts of the Machipongo River and Parting Creek in Accomack County, Moreland Swamp and the western half of Upshur Neck. Length is approximately 11½ miles from Hog Island Bay to the head of the river marshes.

SHORELANDS TYPE

FASTLAND: Low shore. Comprised mainly of northeast trending necks, rarely above 10 feet in elevation. On the mainland side the land slopes gently up to 15 feet for ½ to 1 mile inland, then there is a much steeper terrace to 25 or 30 feet.

SHORE: The shore is marsh, of which 1,284 acres are extensive marsh, 986 acres are embayed marsh, and 148 acres are fringe marsh. Approximately 200 feet of sand beach were noted at Machipongo Shores. The extensive marsh is dissected by many small creeks and winding streams.

NEARSHORE: Within upper Parting Creek the nearshore is shallow and muddy. The Machipongo River has a 300 to 800-foot wide channel to Quinby Bridge (Route 182). Depths range from 50 feet near Hog Island Bay to 4 feet a mile and a half below the bridge. Shallow tidal flats border the channel over most of the length of the river.

SHORELANDS USE

FASTLAND: Unmanaged, wooded (70%), agricultural (25%) and recreational campground on lower Upshur Neck (3%), and residential development at Machipongo Shores (2%).

SHORE: Limited beach recreation, boat mooring and access, and waterfowl hunting.

NEARSHORE: Boat traffic to Willis Wharf and Quinby Bridge, and shellfishing.

OWNERSHIP: Private.

FLOOD HAZARD: Medium near the bay to low farther upstream, noncritical. There is considerable protection against excessive storm surge damage afforded by the marshes and shallows between Upshur Neck and the barrier islands. There are few habitations or businesses near the shore in the segment and most of those are above the 5-foot contour.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Poor. At Machipongo Shores there is 200 feet of medium to narrow width beach with wide tidal flats in front.

SHORE EROSION SITUATION

EROSION RATE: Slight to none, noncritical. There is a little bank erosion of the southeast bank of the Machipongo River 1 or 2 miles below Quinby Bridge. It appears to be only occasional, probably only with a strong northwest wind on higher than normal tides.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There is about 50 feet of poorly constructed bulkhead at the north side of a dredged inlet a mile south of Quinby, on the east side of the river. At Machipongo Shores there is a 75-foot flimsy bulkhead attempting to keep sand from covering a ramp just downstream. It is breached and sand is leaking through to the ramp. At Quinby Bridge there is about 600 feet of concrete rubble riprap on both sides of the causeway west of the bridge span.

Suggested Action: There is no urgency for action here, but both above-mentioned bulkheads might be strengthened.

OTHER SHORE STRUCTURES: There are about half a dozen wooden finger piers in the segment. There is about 300 feet of wooden bulkhead and piers along the causeway west of Quinby Bridge. Three finger piers also occur here, servicing some shellfish businesses (Photos AC-13-278, 236G and 237G). There is a dug basin on the west side of Parting Creek just above the county line, apparently being developed for a small marina (Photos AC-13-270, 240G and 242G). Near the southerly tip of Upshur Neck there is a dredged inlet from the river to a 200-foot bulkhead across the end for boat mooring (Photo AC-13-294). There is a private boat launching ramp at Machipongo Shores.

POTENTIAL USE ENHANCEMENT: Low. As most of the shore is marsh, with shallow flats beyond, little can be done to increase shore use without unacceptable damage to the marsh. There is not much potential for increased shellfish industry as mooring space is very limited, and both Willis Wharf and Quinby offer greater convenience. Family campgrounds are being developed, but are hampered somewhat by lack of beaches.

MAPS: USGS, 7.5 Min.Ser. (Topo.), EXMORE, NASSAWADOX and WACHAPREAGUE Quadrs., 1968. C&GS, #1221, 1:80,000 scale, CHINCOTEAGUE IN. to GREAT MACHIPONGO IN., 1970.

PHOTOS: Aerial-VIMS 18Dec72 AC-13-246 to 248; VIMS 20Mar73 AC-13-270 to 295, AC-14-296 to 307.

Ground - VIMS 1Nov73 AC-13-236 to 242.

QUINBY, ACCOMACK COUNTY, VIRGINIA

SEGMENT 14 (Maps 26, 28, 29, and 30)

EXTENT: 66,500 feet (12.6 mi.) along the easterly fastland-shore between the county line at Machipongo River and the center of Finney Creek. The segment is considered to include the easterly halves of Upshur and Bradford Necks, fastland area behind Wachapreague and, arbitrarily, all the marshland between the fastland and the Intracoastal Waterway.

SHORELANDS TYPE

FASTLAND: Low shore. The five-foot contour occurs within a few score feet of the shore along the length of the segment. The 10-foot contour occurs as an elongate ridge, occasionally interrupted by lower elevations, just a few hundred feet behind the 5-foot contour. It is seldom over 1,000 feet wide, and terminates about 1.7 miles north of the south end of Upshur Neck. Wide, low areas lie behind the ridge.

SHORE: Extensive marsh - 6,303 acres (42,900 feet), fringe marsh - 77 acres (17,900 feet), sand beach (2,500 feet), and artificial shoreline (3,200 feet). The marshes are extensively channeled by creeks.

NEARSHORE: Mud flats, exposed at low water, with occasional channels as deep as 25 feet. The nearshore areas are irregular in shape, interlocking with areas of extensive marsh. The Intracoastal Waterway borders the segment on the east. It has a project depth of 6 feet and is marked with lights and day beacons. Marked channels lead into Wachapreague Harbor and Quinby Harbor.

SHORELANDS USE

FASTLAND: Agricultural (80%), recreational (14%), and commercial (6%).

SHORE: Boat access and mooring, waterfowl hunting, some bathing and other forms of shore recreation.

NEARSHORE: Boating, fishing, and shellfishing.

WIND AND SEA EXPOSURE: The trend of the shoreline is NE - SW. Where marsh does not blanket the area, there are easterly fetches of 1 to 2 nautical miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, critical. Several floods in the past have inundated large parts of the segment, the greatest reaching approximately 9 feet above MSL (Intermediate Regional Tidal Flood Level). Although none has been recorded, weather bureau statistics indicate that a flood to 13 feet is possible (Standard Project Tidal Flood). Even at the intermediate level extensive damage would result from storm floods, and account should be taken of this in planning future developments. A flood control dike was constructed in the 1950's along the east bank of Wachapreague Channel opposite the town to provide some flood protection.

WATER QUALITY: Generally satisfactory except for a few isolated restricted areas.

BEACH QUALITY: Poor. Most of the 2,500 feet of sand beach is located near the lower end of Upshur Neck. It is narrow, thin and strewn with stumps (Photo AC-14-249). This beach is in a fortunate location in regard to the new oceanside campground. With artificial nourishment and a few short groins, it might be considerably improved, although the shallow tidal flats off the beach lessen the desirability of the area for swimming.

SHORE EROSION SITUATION

EROSION RATE: None to slight, noncritical. No erosion is evident in comparing 1938 and 1967 vertical aerial photos over most of the segment. In the sand beach area along the lower part of Upshur Neck there is evidence of slight erosion, less than 1 foot per year, and a similar magnitude of loss from the southwest bank of Wachapreague Channel just southeast of the town. The southwest bank of Finney Creek, in the vicinity of its junction with Wachapreague Channel, appears to have accreted at a rate of about 1 foot per year in the same period.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: Most protective structures in the segment serve to protect artificial works in the two harbors at Wachapreague and Quinby, and at occasional private landings. There is a 600-foot, wooden bulkhead (in the process of being replaced) one-half mile north of the lower end of Upshur Neck and a 70-foot, wooden bulkhead 1½ miles south of Quinby Harbor entrance. Quinby Harbor is a dredged basin approximately 500 feet by 300 feet, with a 400-foot bulkhead, standing about 20 feet from the beach, along the north side of the entrance. There is 350 feet of bulkheading within the basin used to retain vertical banks. There appears to be 100 feet of bulkhead on some privately dredged canals about a mile north of Quinby. Along the Wachapreague waterfront there is about 2,500 feet of wooden bulkheading in various states of repair at the ends and sides of wharves. Most appear to be in fair to good condition. There are short timber jetties protecting the entrances to two marinas. North of the center of the town there is a 150-foot area of waterfront, near the street, protected by concrete rubble riprap. There appear to be no serious problems associated with these structures other than rotting due to age.

Suggested Action: General maintenance of bulkheads is required. If it is desired to utilize the beach at Upshur Neck for recreation, artificial nourishment and some short groins are suggested.

OTHER SHORE STRUCTURES: There are three finger piers on Upshur Neck below Quinby Harbor, two attached to bulkheads. At Quinby there is a paved, public boat launching ramp, about 2 dozen finger piers, and a small railway (Photo AC-14-155). In the reach between Quinby and Wachapreague there is an area of dredged basins and canals off Chalk Pipe Gut, about 1 mile north of Quinby (Photo AC-14-156). At Wachapreague Campers Park, there is a dredged canal, alongside pier, mud ramp and bathing area (Photo AC-14-257, 232G to 235G). A dredged basin is found about ½ mile south of Wachapreague, where the spoil was placed on the marsh and a house recently built on it (Photo AC-14-258, 230G). Wachapreague has a half dozen substantial wharves, bulkheaded and filled, with mooring at the fronts and sometimes at the sides. There are three marinas with accommodations for about 100 boats, a half dozen wooden piers, 3 or more marine railways and a public ramp (Photos AC-14-259 to 261, 214G to 228G).

POTENTIAL USE ENHANCEMENT: Low. Better maintenance of marine facilities would make both harbors more attractive. Available waterfront area will not allow for much additional expansion. Camping facilities are being developed in the segment, but will to some extent

be hampered by lack of good beaches, although, this may be offset by the lure of good fishing and waterfowl hunting in the marshes.

MAPS: USGS, 7.5 Min.Ser. (Topo.), ACCOMAC, EXMORE, NASSAWADOX, QUINBY INLET and WACHAPREAGUE Quadrs., 1968.
C&GS, #1221, 1:80,000 scale, CHINCOTEAGUE INLET to GREAT MACHIPONGO INLET, 1970.

PHOTOS: Aerial-VIMS 18Dec72 AC-13-246 to 248, AC-14-249 to 261;
VIMS 20Mar73 AC-13-279 to 295, AC-14-296 to 313, AC-15-314 to 316.

Ground - VIMS 1Nov73 AC-14-214G to 235G.

BURTONS BAY, ACCOMACK COUNTY, VIRGINIA

SEGMENT 15 (Maps 25, 26, and 27)

EXTENT: 46,900 feet (8.9 mi.) along the shore-fastland boundary between the middle of Finney Creek at the south and Parker Creek at the north. The Intracoastal Waterway is taken as the easterly boundary of the segment.

SHORELANDS TYPE

FASTLAND: Low shore. There is a very gentle slope, with the 20-foot contour generally more than a mile inland from the fastland-shore boundary.

SHORE: Extensive marsh - 1,136 acres (63%), embayed marsh - 658 acres (36%), fringe marsh - 20 acres (1%), and scattered reaches of narrow, sand beach - 3,500 feet.

NEARSHORE: Intermediate to wide. Shallow bays with mud bottoms, tidal flats, separated by extensive marsh shore areas. Bounded on the east by the Intracoastal Waterway.

SHORELANDS USE

FASTLAND: Agricultural (99%), and residential (1%).

SHORE: Hunting, access to boating, some beach recreation, (Burtons Shore area) and some spoil dumping (Folly Creek).

NEARSHORE: Sport fishing, shellfishing, and boat traffic.

WIND AND SEA EXPOSURE: The general orientation of the shoreline is NE - SW. Easterly fetches are 0 to 1 nautical mile.

OWNERSHIP: Private.

FLOOD HAZARD: High, noncritical. Although hurricane or northeast storm flooding could inundate the area below ten feet, there are few, if any, permanent habitations below that level.

WATER QUALITY: Satisfactory.

BEACH QUALITY: Poor. Those beaches which do exist in the Burtons Shore area and on Baylys Neck are narrow, covered with stumps and of generally poor quality (Photos AC-15-199G, 200G).

SHORE EROSION SITUATION

EROSION RATE: None to slight, noncritical. The only erosion noted was at Burtons Shore and at the end of Baylys Neck, where intermittent sand beaches occur. The rate there is quite certainly less than a foot per year. No change is observed between 1938 and 1967 aerial photos. The creeks appear stable, although there is evidence of a little erosion at Folly Creek Landing off Route 651.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There is a block and brick revetment, at present ineffective, at Folly Creek Landing (Photo AC-15-198G). A plank bulkhead, at Burtons Shore, which is nearly filled (Photo AC-15-201G). At Edgewater, 1.3 miles southwest of Burtons Shore, there is a private summer residence with a massive 100-foot concrete seawall in front of the house and about 300 feet of concrete riprap protecting the north bank of the boat basin just south of the house (Photos AC-15-262, 204G, 206G, 210G). This protection was primarily necessary because the house was built on fill which had been placed on the shore. Also in the Burtons Shore vicinity there is some concrete rubble riprap protecting both sides of the road (Route 647) where it crosses an arm of Custis Creek 0.4 miles in from the shore.

Suggested Action: None.

OTHER SHORE STRUCTURES: There are two finger piers at Edgewater and one at Burtons Shore, along with occasional fences that cross the beach along Burtons Bay and Metomkin Bay. The other major artificial features along the shore in this segment are the earthen dikes found just north of Finneys Creek, at Edgewater, on Cross Creek, and just north of Folly Creek. These dikes were placed to contain spoil for making land on the marshes, presumably to be developed for seasonal housing (Photo AC-15-265, 226, 315, and 209G). The spoil is apparently obtained from periodic dredgings of the Intracoastal Waterway. On upper Folly Creek, at the end of Route 740 there are the remains of a defunct oyster operation, with rotting bulkheads, but still with access to deep water (Photos AC-15-192G to 194G). Farther downstream is Folly Creek Landing with a paved ramp and two finger piers (Photos AC-15-195G to 197G). All together, there are about a dozen finger piers on Folly Creek.

POTENTIAL USE ENHANCEMENT: Low. Without good beaches or harbor areas it would seem that this area is best suited to present uses such as agriculture, hunting and fishing. The destruction of the marshes by diking and spoil fill is deplorable. With the high flood hazard, residences built on the spoil would be subject to periodic flooding.

MAPS: USGS, 7.5 Min.Ser. (Topo.), ACCOMAC, METOMKIN INLET and WACHAPREAGUE Quadrs., 1968. C&GS, #1221, 1:80,000 scale, CHINCOTEAGUE INLET to GREAT MACHIPONGO INLET, 1972.

PHOTOS: Aerial-VIMS 18Dec72 AC-15-262 to 268; VIMS 20Mar73 AC-14-313, AC-15-314 to 339.

Ground - VIMS 31Oct73 AC-15-192G to 213G.

GARGATHY, ACCOMACK COUNTY, VIRGINIA

SEGMENT 16 (Maps 22 and 23)

EXTENT: 54,600 feet (10.3 mi.) along the fastland-shore boundary, between the middle of Parker Creek on the south and the middle of Assawoman Creek on the north. The easterly boundary is arbitrarily defined by the Intracoastal Waterway channel.

SHORELANDS TYPE

FASTLAND: Low shore, gently sloping from the marsh level to 25 feet elevation a half mile or more inland. The fastland area is penetrated by several small creeks including Bundick, Whites, Gargathy, Northam and Hog Neck Creeks. The creek banks have generally steep slopes with 15 to 20 feet relief.

SHORE: Mostly extensive marsh alternating with bays (Metomkin, Gargathy, Kegotank Bays). There is extensive marsh along 47,200 feet and fringe marsh along 7,100 feet of the length of the segment. In area, extensive marsh comprises 1,133 acres (53%), embayed marsh - 991 acres (46%), and fringe marsh - 16 acres (1%). There is no sand beach.

NEARSHORE: Metomkin, Gargathy, and Kegotank Bays constitute the nearshore. They are intermediate to wide, shallow, with some tidal mud flats. The Intracoastal Waterway with controlling depth of 6 feet bounds the segment.

SHORELANDS USE

FASTLAND: Agricultural (71%), residential (19%), and unmanaged, wooded (10%).

SHORE: Access to boating (on the creeks) and waterfowl hunting.

NEARSHORE: Boat traffic, fishing, and shellfishing.

WIND AND SEA EXPOSURE: The shoreline trends NE - SW. At Parker Neck on Metomkin Bay there is an easterly fetch of a mile. There are easterly fetches of $\frac{1}{2}$ mile or less on Gargathy and Kegotank Bays.

OWNERSHIP: Private.

FLOOD HAZARD: High in the shore area, due to storm flooding. Noncritical, in general, because most of the older homes near the shore are built at elevations above 10 feet. It may become critical as the area between Parker Creek and Bundick Creek becomes developed (Fox Grove Estates). Much of this is on land below 10 feet and some is on marsh fill and will be extremely subject to flooding. Flood hazard is medium to boating facilities on the lower and middle sections of the creeks, low to residences.

WATER QUALITY: Satisfactory.

BEACH QUALITY: There are no beaches in this segment.

SHORE EROSION SITUATION

EROSION RATE: There appear to be no significant erosion problems in the segment.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: On Gargathy Creek, on the south side about 0.3 mile up from the junction with Cutoff Creek there is about 200 feet of concrete block retaining wall along the bank of the creek which turns into a dug basin at a private residence. Besides some 50 feet of concrete wall in the basin, there is another 200 feet of well-maintained wooden bulkhead (Photos AC-16-351, 171G to 173G). These structures are primarily cosmetic.

Suggested Action: None at present. Bulkheading and flood control diking may be necessary in the Parker Creek mouth area if development continues on the shore area.

OTHER SHORE STRUCTURES: At the north side of Parker Creek mouth there are several canals, basins and spoil dikes in the shore area (Photos AC-16-340, 186G, 187G) and likewise at the south side of the mouth of Bundick Creek (Photos AC-16-345, 176G to 179G). These operations are all associated with Fox Grove Estates. There are two finger piers on Metomkin Bay in this area.

On Parker Creek, at the end of Route 666 there is a paved launching ramp and a pier. Upstream is a bulkheaded wharf and a small oyster operation (Photos AC-180G, 181G). Downstream there is a dredged basin, ramp and pier. On the North Fork of Parker Creek at the end of Route 665, there are two small piers (Photos AC-16-184G, 185G).

On Gargathy Creek there is a paved, public boat ramp and a half dozen finger piers on the west side of the creek at the end of Route 680 (Photos AC-16-174G, 175G). At the end of Route 681, there is a paved, public ramp, and a half-dozen private finger piers (Photos AC-16-167G, 169G, 170G). Near the upper end of Hog Neck Creek there is a small, private, run-down pier (Photo AC-16-166G).

At the end of Route 730, there is an abandoned pier and ferry facility connecting with the NASA operation at Wallops Island. Several usable piers and a boat launching ramp still remain (Photos AC-16-160G to 162G). Nearer the head of the creek, at Conquest Farms on Pettit Branch there is a private boathouse, slip, and finger piers (Photo AC-16-159G).

POTENTIAL USE ENHANCEMENT: Moderate. Due to flood hazard and possible damage to the marshes, it would be undesirable to continue shoreline development. However, the up-land elevations between the creeks are quite attractive and do offer potential for low density homesite development. The lack of beaches in the segment limits the potential for beach recreation. For health reasons as well as improvement of the aesthetic value of the area, steps should be taken to remove and prevent further despoliation of marsh areas adjacent to access roads.

MAPS: USGS, 7.5 Min.Ser. (Topo.), BLOXOM and METOMKIN INLET Quadrs., 1968.
C&GS, #1221, 1:80,000 scale, CHINCOTEAGUE INLET to GREAT MACHIPONGO INLET, 1972.

PHOTOS: Aerial-VIMS 18Dec72 AC-15-268, AC-16-269; VIMS 20Mar73 AC-16-340 to 365.

Ground - VIMS 40ct73 AC-16-159 to 189.

POWELLS BAY, ACCOMACK COUNTY, VIRGINIA

SEGMENT 17 (Maps 19, 20, 21, and 22)

EXTENT: 45,300 feet (8.6 mi.) along the fastland-shore boundary between the middle of Assawoman Creek to the south and Mosquito Creek to the north. The easterly boundary is arbitrarily defined by the Intracoastal Waterway.

SHORELANDS TYPE

FASTLAND: Low shore, sloping up to 30 feet about 1,000 feet from the shore boundary. Moderately low shore along Mosquito Creek, whose south bank rises rapidly to a general elevation of 35 to 40 feet.

SHORE: Primarily extensive marsh interrupted by small bays. Extensive marsh comprises 5,590 acres (96%); embayed marsh - 235 acres (4%), and fringe marsh - 4 acres (less than 1%). The marsh is cut by several large channels and numerous small, winding creeks.

NEARSHORE: Shallow, irregular bays, particularly in the middle part of the segment, lie between the fastland and the extensive marshes. Included are Bogues Bay, Powells Bay, Watts Bay, Simoneaston Bay, and Shelly Bay, which is located farther offshore and connects via a wide channel (Queen Sound Channel) with both Chincoteague Bay and Chincoteague Channel. The Intracoastal Waterway, with controlling depth of 6 feet, lies at the easterly side of the segment. There are numerous oyster beds on the tidal flats in the bays.

SHORELANDS USE

FASTLAND: Government, NASA, Wallops Station (49%), agricultural (31%), unmanaged, open (9%), unmanaged, wooded (7%), residential (2%), and commercial (2%).

SHORE: Hunting, shellfishing, and spoil dumping, especially in the vicinity of the Wallops Island causeway.

NEARSHORE: Sport fishing, shellfishing, and boat traffic.

WIND AND SEA EXPOSURE: General shore orientation is NE - SW. Fetches across the bays are from the E, $\frac{1}{2}$ to $\frac{3}{4}$ nautical mile.

OWNERSHIP: Private - 51%; Federal Government - 49%.

FLOOD HAZARD: Low, noncritical to most of the segment. Medium, critical along the immediate shore-fastland area, where there are a few residences and businesses at elevations below 10 feet. High, noncritical on the marshes.

WATER QUALITY: Generally satisfactory, with some isolated condemned areas.

BEACH QUALITY: There are no beaches in the segment.

SHORE EROSION SITUATION

EROSION RATE: None to slight, noncritical. No erosion is noted over most of the segment. There appears to have been some erosion at Wishart Point where the road parallels the shore. The presence of riprap along the road and lack of marsh grass along the waters' edge are indicators of a slight erosion problem.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: At Wishart Point there is about 900 feet of plank bulkheading along the north bank of the boat slip. Approximately 300 feet of this is in very poor condition. The remainder, inland from the ramp, is in good condition. Along Route 695 there is 200 feet of concrete rubble riprap along the back shore (Photos AC-17-373, 155G to 157G). There is some riprap and wooden bulkheading at the bridge approaches along Route 175 where it crosses Queen Sound Channel between the mainland and Chincoteague Island.

Suggested Action: No imminent need for action, but repair of the bulkhead at Wishart Point is desirable to prevent future erosion and slumping of the north bank of the boat slip.

OTHER SHORE STRUCTURES: A two lane highway (Route 803) crosses the marshes to Wallops Island. There is a wooden finger pier in poor shape at the end of Route 781. In the slip at Wishart Point there are one or two wooden finger piers with some alongside mooring space and a paved boat ramp (Photo AC-17-158G). At the end of Route 766, on Watts Bay, there is a restaurant built out on pilings, and to the north side a dredged boat slip. This is in very poor condition with rotting bulkheading and sunken boats (Photos AC-17-378, 150G, 151G). Near the north end of the segment there is a causeway leading from the mainland to Chincoteague (Route 175). Fixed bridges cross the various creeks with vertical clearances varying between 6 and 12 feet, except across Chincoteague Channel where there is a swing bridge to accommodate Intracoastal Waterway traffic. West of Queen Sound Channel there is a public boat ramp, small piers and mooring pilings (Photo AC-17-147G). In this vicinity, as well as at some other localities in the segment there are orderly layouts of oyster "rocks", exposed at low water (Photos AC-17-148G, 148G).

Back of the shoreline there are a number of dredged ponds in the segment, notably on Arbuckle Neck, just north of Assawoman Creek and just south of Wishart Point, on Bogues Bay (Photos AC-17-367, 369, 372, 373). Some of these may be water filled sand pits (see Bloxom Quadr.), while others may have been dug with the intention eventually to connect them with the bay for waterfront development. Just to the north of Route 695 at Wishart Point, there is a 500-foot wide diked area (Photo AC-17-374) extending along the shore for 1,500 feet. It appears that the fastland slope has been bulldozed to make a dike along the shore. A spillway, lined with plywood, is constructed in the dike near the south end. Possibly it is intended to pump waterway dredge spoil in to build up high land along the shore for development. The spillway would drain off excess water as the spoil is dumped.

POTENTIAL USE ENHANCEMENT: Low. There are no beaches to develop for shore recreation, and the marshes should be left, as much as possible, in their virgin condition. There is the potential for low density residential development just back from the fastland-shore boundary at the top of the shore slope, where attractive vistas across the marshland can be obtained. It is not recommended that shoreline development close to the high water level be continued or undertaken. Aside from the hazards of flooding, the Environmental Protection Agency indicates the probable stagnation and pollution of the waters in the small, dredged canal-type inlets off the bays.

MAPS: USGS, 7.5 Min.Ser. (Topo.), BLOXOM and HALLWOOD Quadrs., 1968 and CHINCOTEAGUE WEST and WALLOPS ISLAND Quadrs., 1965.
C&GS, #1221, 1:80,000 scale, CHINCOTEAGUE INLET to GREAT MACHIPONGO INLET, 1972.

C&GS, #1220, 1:80,000 scale, FENWICK ISLAND LIGHT to CHINCOTEAGUE INLET, 1970.

PHOTOS: Aerial-VIMS 20Mar73 AC-16-365; AC-17-366 to 387.

Ground - VIMS 40ct73 AC-17-147G to 158G.

CHINCOTEAGUE BAY, ACCOMACK COUNTY, VIRGINIA

SEGMENT 18 (Maps 18, 19, and 20)

EXTENT: 40,000 feet (7.6 mi.) along the western shoreline of Chincoteague Bay between the middle of Mosquito Creek and the Maryland state line. The Intracoastal Waterway is the east boundary, except west of Chincoteague the line is run through Black Narrows to include the developed marsh island west of the bridge in AC19.

SHORELANDS TYPE

FASTLAND: Low shore, except in the locality of Winders Neck where moderately low shore with bluff is encountered intermittently with low shore.

SHORE: Extensive marsh - 625 acres (22,000 feet), embayed marsh - 402 acres (4,500 feet), fringe marsh - 4 acres (7,700 feet), sand beach (4,800 feet), and artificial retainment (1,000 feet). The larger areas of marsh occur at the south end of the segment, and east of Greenbackville to the state line. The embayed marsh occurs mostly in Swans Gut Creek with lesser amounts in Guys Point Gut and Powell Creek west of Greenbackville. Fringe marsh and sand beach are interspersed along the shore between the foregoing. Artificial retainment occurs mostly in the Greenbackville area.

NEARSHORE: Wide. The entire width of Chincoteague Bay is shallow. Distance between the shore and the Intracoastal Waterway ranges between 1,000 and 6,000 yards. Maximum depth is 7 feet, and the average is about 4 feet. Very shoal areas at the south near Mosquito Creek contain many oyster "rocks", elsewhere the bottom is mostly muddy.

SHORELANDS USE

FASTLAND: Agricultural (50%), residential (20%), unmanaged, wooded (20%), and commercial (10%).

SHORE: Boat access and storage, mooring, hunting, beach recreation south of Sinnickson and north of Cockle Point, and some dumping, particularly southeast of Greenbackville.

NEARSHORE: Boat traffic, water sports, sport fishing, and shellfishing.

WIND AND SEA EXPOSURE: Two-thirds of the shoreline is oriented N - S, the other third is E - W. The fetch from the NE is up to 15 nautical miles, from the E is 3 miles, and from the SE is 3 miles.

OWNERSHIP: Private.

FLOOD HAZARD: High, critical in the Greenbackville and Cockle Point (Captains Cove) areas, noncritical over the marshes. Much of Greenbackville and all of Franklin City is below the 5-foot contour and, consequently, highly susceptible to storm flooding. None of Greenbackville is above the 10-foot contour. The same applies to much of the new Captains Cove development in the Cockle Point vicinity. Elsewhere the fastland rises fairly rapidly and the flood hazard is low.

WATER QUALITY: Generally satisfactory, but there are some isolated areas that have been determined unsatisfactory.

BEACH QUALITY: Fair to poor. About 1,000 feet of fair sand beach occurs just south of Swans Gut Creek at Sinnickson (Photos AC-18-137G, 138G) and also just north of Cockle Point at Captains Cove development (Photo AC-18-131G). Nearshore depths are barely deep enough for satisfactory swimming. Near Greenbackville and Franklin City the beaches are narrow, shelly, and usually debris laden (Photos AC-18-121G, 125G).

SHORE EROSION SITUATION

EROSION RATE: Slight to severe, noncritical. The beaches south of Sinnickson indicate slight erosion occurs on Winders Neck. There is an eroded 10-foot bluff here, mostly grass-covered, indicating intermittent erosion, probably due to large storms. Both Cockle Point and Long Point have been cut from the east and have lost length since 1938. Beach losses to the north of these points appear to have been moderate to severe.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: At Sinnickson there is about 400 feet of wooden bulkheading that is in poor to fair condition (Photo AC-18-396). Along the south shore of Captains Cove several hundred feet of shell and sand-filled gabions have been placed at the back of the shore to retain fill placed on the marsh (Photos AC-18-399, 1277, 133G, 136G). At Greenbackville there is about 100 feet of concrete rubble riprap (Photo AC-18-125G). Almost the entire length of the west side of the basin is lined with 600 feet of fair to good plank bulkhead. Along the north side there are some poor sections of bulkheading. At a dumping area between Greenbackville and Franklin City there is an old wharf with about 150 feet of concrete seawall frontage, and 150 feet of dilapidated timber bulkhead. This is all in bad condition. At Franklin City there is about 200 feet of concrete rubble riprap, extending both east and west from the end of Route 679. This is in good shape. To the east are the remains of some plank groins (Photo AC-18-118G). In the same area there is a 160-foot right angled bulkhead facing south and west, which is in poor condition (Photo AC-18-120G).

Suggested Action: Both Sinnickson and Franklin Wharf need repair to bulkheading. Additional bulkheading needs placing at the inner parts of the Greenbackville basin. If the Captains Cove development wishes to maintain a bathing beach, it may be necessary to place some groins along the beach north of Cockle Point and nourish them.

OTHER SHORE STRUCTURES: There are boat launching ramps at Horntown Landing at the end of Route 709 (Photo AC-18-141G), and at Greenbackville basin (Photo AC-18-126G). There is probably a private ramp at Captains Cove. Sinnickson has about 200 feet of alongside mooring and a few finger piers. At Greenbackville there is about 500 feet of alongside mooring on the west side of the basin, some finger piers at the north side (Photo AC-18-128G), and mooring dolphins along the east bank. At Franklin City there is a good wooden pier belonging to the fisheries research station (Photo AC-18-119G). At several places along the shore in the Greenbackville and Franklin City area there are remains of old piers and wharves out in the water (Photos AC-18-412, 415, 120G, 121G, 125G). East of the Greenbackville basin there is a large, diked spoil dumping area, and near Franklin City a smaller refuse dumping area, both on the marsh (Photos AC-18-413, 122G, 123G).

Between Swans Gut Creek and Powell Creek, either side of Cockle Point, Captains Cove development has extensively excavated and filled marsh and fastland to build a canal-type waterfront community (Photos AC-18-400, 405, 408, 1277).

POTENTIAL USE ENHANCEMENT: Moderate. The Captains Cove area will probably continue to develop, although the low parts will be subject to flooding and possible stagnation in the waters of the canals. Other areas of marsh should be preserved in their natural state. The relief in the Winders Neck area offers some possibility for residential development and improvements might be made at Sinnickson for the convenience of boat owners. The waterfront at Greenbackville could be cleaned up and the marshes restored, as much as possible, to their natural condition to enhance that area.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE WEST Quadr., 1965 and GIRDLETREE Quadr., 1966. C&GS, #1220, 1:80,000 scale, FENWICK ISLAND LIGHT to CHINCOTEAGUE INLET, 1973.

PHOTOS: Aerial-VIMS 20Mar73 AC-18-388 to 418; VIMS 150ct73 AC-18-1273 to 1277.

Ground - VIMS 27Sep73 AC-18-118 to 141.

CHINCOTEAGUE ISLAND,

ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 19A (Maps 34, 35, 36, 37)

EXTENT: 133,400 feet (25.3 mi.), from Archie Cove south along the western shore of Chincoteague Island, around Chincoteague Point and north along the eastern shore to Woods Grove. The western boundary of the subsegment is Black Narrows. This subsegment has 163,600 feet (31.0 mi.) of fastland.

SHORELANDS TYPE

FASTLAND: Low shore 97%; low shore with dunes 2%, on Chincoteague Point; artificial 1%, along Chincoteague Channel.

SHORE: Extensive marsh 58%; fringe marsh 22%; artificially stabilized 14%; beach 5%; embayed marsh 1%.

NEARSHORE: Narrow (16%) for 21,000 feet, 4 miles, along The Canal and Chincoteague Channel, and parts of Assateague Channel.

SHORELANDS USE

FASTLAND: Residential 88%; commercial 8%; recreational 4%, campgrounds; governmental <1%, Coast Guard Station.

SHORE: The parts of the shore that are useable are utilized for recreational (crabbing, clamming, boating) and commercial purposes.

NEARSHORE: Some pleasure boating; fishing and shellfishing.

OFFSHORE BOTTOM: Chincoteague Channel, which parallels the western shore of Chincoteague Island averages 13 feet deep, with 6-inch to 4-foot shoals. Its branch called Black Narrows passes on the western side of the small island supporting the Route 175 bridge. Muddy, and in some places marshy tidal flats extend offshore and drop off into the dredged channel. Assateague Channel parallels the eastern shore of Chincoteague Island with a maximum depth of 21 feet. It is narrow, bordered by mud flats and oyster rocks. Between Piney Island and Janeys Creek Marsh it shoals to about 4 feet in depth.

WIND AND SEA EXPOSURE: Along the western shore the shoreline trends NE - SW; the fetch from the W is 3-5 miles, from the NW is 4 miles, from the N is 5 miles. Along the eastern shore the shoreline trends ENE - WSW; the fetch from the SSW is 130 miles at Chincoteague Point, from the SSE is unlimited at Chincoteague Point and 1.3 miles into Tom's Cove, from the ESE is 3 miles.

OWNERSHIP: Private 99%; Federal <1%, Coast Guard Station; State <1%, public boat landings.

ZONING: Agricultural, commercial, residential.

FLOOD HAZARD: High, critical, elevations are predominantly less than 10 feet. The fastland is for the most part extensively developed.

WATER QUALITY: Intermediate in Chincoteague Channel as of May 1974; unsatisfactory in Assateague Channel as of June 1974. Condemned shellfishing areas include the waters along the western shore from Blake Point to the southern end of the island, Fowling Gut, Assateague Channel at Black Point Landing and on Piney Island around Birch Town.

BEACH QUALITY: Poor; there are a few narrow beaches, access to the public is limited, and the offshore is shallow and muddy.

SHORE EROSION SITUATION

EROSION RATE: Severe, noncritical on Chincoteague Point and The Canal. Moderate, noncritical above Black Point Landing on Assateague Channel.

ENDANGERED STRUCTURES: There are some buildings at the southern end of Route 2114 which may be endangered.

SHORE PROTECTIVE STRUCTURES: There is bulkheading and riprap along the town of Chincoteague waterfront, which has been built out and filled in, at Black Point Landing and on the northeast shore of Piney Island. The riprap on Piney Island consists of discarded automobiles. There is wooden bulkheading at Birch Town and in the Oyster Bay development complex.

Suggested Action: None.

OTHER SHORE STRUCTURES: There are many piers along the Chincoteague waterfront.

POTENTIAL USE ENHANCEMENT: Low, most of the shoreline is developed, and there are no desirable beaches.

MAPS: C&GS, #1220, 1:80,000 scale, FENWICK ISLAND LIGHT to CHINCOTEAGUE INLET, 1973.
USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE EAST, Va. Quadr., 1965;
USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE WEST, Va. Quadr., 1965.

PHOTOS: Aerial-VIMS 150ct73 AC-16-20 to 80;
VIMS 150ct73 AC-17-1to 32, 35 to 68;
VIMS 5Jun74 AC-4-42.

Ground - VIMS 40ct73 AC-98-62G to 66G;
VIMS 17Jul74 AC-4-57G to 59G;
VIMS 23Jul74 AC-5-44G, 45G, 47G to 55G.

WILDCAT MARSH, CHINCOTEAGUE ISLAND,
ACCOMACK COUNTY, VIRGINIA
SUBSEGMENT 19B (Maps 35, 37)

EXTENT: 33,200 feet (6.3 mi.), Wildcat Marsh from Archie Cove on the west to Woods Grove on the east, and the Coards Marsh island group to the north. This subsegment has 12,400 feet (2.3 mi.) of fastland.

SHORELANDS TYPE
FASTLAND: Low shore.
SHORE: Extensive marsh 97%; fringe marsh 3%.
NEARSHORE: Shallow, soft muddy bottom with oyster rocks.

SHORELANDS USE
FASTLAND: Unmanaged, wooded.
SHORE: Hunting or none.
NEARSHORE: Shellfishing, fishing, waterfowl hunting.

OFFSHORE BOTTOM: There is a 5 to 13-foot channel in Assateague Bay. On the northwest, in Chincoteague Bay, the water is shallow, 4 feet and less, and the bottom is soft.

WIND AND SEA EXPOSURE: The shoreline trends NE - SW. The fetch from the W is 5 miles, NW is 3 miles, and N is 4 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High, noncritical, there are no structures in this area.

WATER QUALITY: Satisfactory.

BEACH QUALITY: There are no beaches.

SHORE EROSION SITUATION
EROSION RATE: Slight to none.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: None.

MAPS: C&GS, #1220, 1:80,000 scale, FENWICK ISLAND LIGHT to CHINCOTEAGUE INLET, 1973.
USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE EAST, Va. Quadr., 1965.

PHOTOS: Aerial-VIMS 150ct73 AC-16-10 to 19;
VIMS 5Jun74 AC-4-40, 41.

Ground - VIMS 23Jul74 AC-5-56G to 58G.

MORRIS ISLAND, CHINCOTEAGUE ISLAND,
ACCOMACK COUNTY, VIRGINIA
SUBSEGMENT 19C (Maps 35, 37)

EXTENT: 35,000 feet (6.6 mi.), Morris Island including the island north of Morris Island Creek and the island east of Little Morris Island Creek. This subsegment has 2,200 feet (0.4 mi.) of fastland.

SHORELANDS TYPE
FASTLAND: Low shore.
SHORE: Extensive marsh.
NEARSHORE: Shallow, bottom is muddy with oyster rocks.

SHORELANDS USE
FASTLAND: Unmanaged, wooded.
SHORE: Hunting or none.
NEARSHORE: Shellfishing, waterfowl hunting.

OFFSHORE BOTTOM: The bottom is soft and spotted with oyster rocks. Except for the 6 to 10-foot channel which parallels the shore, the water is very shallow.

WIND AND SEA EXPOSURE: The area is protected by Assateague Island.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High, noncritical as there are no structures.

WATER QUALITY: There are no data available.

BEACH QUALITY: There are no beaches.

SHORE EROSION SITUATION
EROSION RATE: Slight to none.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: None.

MAPS: C&GS, #1220, 1:80,000 scale, FENWICK ISLAND
LIGHT to CHINCOTEAGUE INLET, 1973.
USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE EAST,
Va. Quadr., 1965.

PHOTOS: Aerial-VIMS 150ct73 AC-17-29 to 32.

Ground - VIMS 23Jul74 AC-5-41G to 43G.

CALFPEN BAY, ASSATEAGUE ISLAND,
ACCOMACK COUNTY, VIRGINIA
SUBSEGMENT 20A (Maps 37, 38)

EXTENT: 113,000 feet (21.4 mi.), bay side of Assateague Island from the Virginia - Maryland state line south to Smith Bay Tumps. This subsegment has 87,200 feet (16.5 mi.) of fastland.

SHORELANDS TYPE
FASTLAND: Low shore 99%, artificial earth dams on the pond behind Ragged Point Marshes 1%.
SHORE: Extensive marsh 58%, fringe marsh 40%, embayed marsh 2%.
NEARSHORE: Shallow, 3 feet or less, with a 4 to 6-foot deep channel west of the Ragged Point Marshes.

SHORELANDS USE
FASTLAND: Preserved, Chincoteague National Wildlife Refuge, with some hunting allowed.
SHORE: Preserved, some hunting.
NEARSHORE: Some shellfishing, fishing.

OFFSHORE BOTTOM: The bottom is soft and sandy in the shoals nearshore, grading to muddy towards the center of Chincoteague Bay.

WIND AND SEA EXPOSURE: The shoreline trends NE - SW. The fetch from the W is 5 miles, from the NW is 3 miles, and from the N is 4-8 miles.

OWNERSHIP: Federal.

FLOOD HAZARD: High, noncritical except to a very few scattered residences.

WATER QUALITY: Satisfactory.

BEACH QUALITY: There are no beaches.

SHORE EROSION SITUATION
EROSION RATE: Slight to none.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Low, as use is under the jurisdiction of the Bureau of Sport Fisheries and Wildlife.

MAPS: C&GS, #1220, 1:80,000 scale, FENWICK ISLAND LIGHT to CHINCOTEAGUE INLET, 1973.
USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE EAST, Va. Quadr., 1965;
USGS, 7.5 Min.Ser. (Topo.), BOXIRON, Md. - Va. Quadr., 1964.

PHOTOS: Aerial-VIMS 15Oct73 AC-16-10, 11; VIMS 5Jun74 AC-4-34 to 38; VIMS 3Dec74 AC-6-6, 7.

Ground-VIMS 23Jul74 AC-4-60G to 70G.

ASSATEAGUE BAY, ASSATEAGUE ISLAND,
ACCOMACK COUNTY, VIRGINIA
SUBSEGMENT 20B (Maps 35, 37)

EXTENT: 33,000 feet (6.3 mi.), bay side of Assateague Island from Smith Bay Tumps to Carrs Marsh. This subsegment has 52,000 feet (9.8 mi.) of fastland.

SHORELANDS TYPE
FASTLAND: Low shore.
SHORE: Fringe marsh 73%, extensive marsh 24%, embayed marsh 3%.
NEARSHORE: Shallow with tidal flats, oyster rocks and a 3 to 13-foot channel.

SHORELANDS USE
FASTLAND: Preserved, Chincoteague National Wildlife Refuge, with some hunting allowed.
SHORE: Preserved, with some hunting.
NEARSHORE: Shellfishing, fishing.

OFFSHORE BOTTOM: The bottom is soft with tidal flats and oyster rocks. Except for a 3 to 13-foot channel the water is shallow.

WIND AND SEA EXPOSURE: The shoreline trends NNE - SSW. The fetch from the NNW is 4 miles in the area just south of Smith Bay Tumps. Otherwise the shoreline is protected by Chincoteague Island.

OWNERSHIP: Federal.

FLOOD HAZARD: Medium along Assateague Bay where a 5 to 10-foot dike is maintained to hold back a fresh water impoundment for migrating birds. High, noncritical along the remainder of the subsegment.

WATER QUALITY: There are no data available.

BEACH QUALITY: There are no beaches.

SHORE EROSION SITUATION
EROSION RATE: Slight to none, except for a cutting back of the shore north of Smith Hammocks back to the artificial dike.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Low, as use is under the jurisdiction of the Bureau of Sport Fisheries and Wildlife.

MAPS: C&GS, #1220, 1:80,000 scale, FENWICK ISLAND LIGHT to CHINCOTEAGUE INLET, 1973.
USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE EAST, Va. Quadr., 1965.

PHOTOS: Aerial-VIMS 150ct73 AC-17-33, 34;
VIMS 5Jun74 AC-4-39.

Ground - VIMS 23Jul74 AC-5-59G to 64G.

BLACK DUCK MARSH, ASSATEAGUE ISLAND, ACCOMACK COUNTY, VIRGINIA

SUBSEGMENT 20C (Maps 34, 35, 36, 37)

EXTENT: 59,000 feet (11.2 mi.), bay side of Assateague Island from Janeys Creek to Little Toms Cove. This subsegment has 49,000 feet (9.3 mi.) of fastland.

SHORELANDS TYPE
FASTLAND: Low shore 84%, artificial earth dams along the road 11%, moderately low shore near the National Wildlife Refuge Office 3%, moderately high shore opposite Janeys Creek 2%.
SHORE: Extensive marsh 70%, fringe marsh 21%, beach 9%.
NEARSHORE: Narrow along Assateague Channel which is 7 to 19 feet deep with tidal flats near Janeys Creek Marsh and Assateague Point. Toms Cove is up to 11 feet deep with a sticky bottom and tidal flats around the periphery.

SHORELANDS USE
FASTLAND: Preserved, Chincoteague National Wildlife Refuge, with birdwatching and some hunting allowed.
SHORE: Preserved, some hunting, shellfishing, recreational clamming and crabbing.
NEARSHORE: Fishing, shellfishing.

OFFSHORE BOTTOM: The bottom is soft in Assateague Channel with tidal flats and a 7 to 19-foot channel. In Toms Cove the bottom is sticky and slopes toward the center in the eastern portion to as deep as 11 feet.

WIND AND SEA EXPOSURE: From Janeys Creek to Horse Marsh the shoreline trends ENE - WSW and is protected by Chincoteague Island. From Horse Marsh to Assateague Point the shoreline trends N - S and the fetch from the SW is 9 miles. From Assateague Point to Little Toms Cove the shoreline trends E - W; the fetch from the SE is 1 mile, from the S is 1.5 miles, and from the SW is 1.5 miles.

OWNERSHIP: Federal.

FLOOD HAZARD: Low along Assateague Channel; high, noncritical on Black Duck Marsh.

WATER QUALITY: Unsatisfactory along Assateague Channel in June 1974.

BEACH QUALITY: Fair to poor. On either side of the bridge from Chincoteague there is a narrow beach which is used for some wading. East of Assateague Point in Toms Cove the shore is sandy but access is limited and the offshore is very shallow.

SHORE EROSION SITUATION
EROSION RATE: Severe, noncritical on Assateague Point. Elsewhere slight to none.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: None.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Low, as use is under the jurisdiction of the Bureau of Sport Fisheries and Wildlife.

MAPS: C&GS, #1220, 1:80,000 scale, FENWICK ISLAND LIGHT to CHINCOTEAGUE INLET, 1973.
USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE EAST, Va. Quadr., 1965;
USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE WEST, Va. Quadr., 1965.

PHOTOS: Aerial-VIMS 3Dec74 AC-6-2 to 5.

Ground - VIMS 17Jul74 AC-4-56G;
VIMS 23Jul74 AC-5-46G.

FISHING POINT, ASSATEAGUE ISLAND,
ACCOMACK COUNTY, VIRGINIA
SUBSEGMENT 20D (Maps 36)

EXTENT: 52,400 feet (9.9 mi.), the southern spit of Assateague Island from Little Toms Cove to Fishing Point and back to the parking lot at Bench Mark 4. This subsegment has 53,000 feet (10.0 mi.) of fastland.

SHORELANDS TYPE
FASTLAND: Low shore 52%, low shore with dunes on the ocean side 48%.
SHORE: Wide sand beach 90%, some extensive marsh in Little Toms Cove 10%.
NEARSHORE: Toms Cove is up to 11 feet deep. On the ocean side the offshore varies from narrow to wide, narrow near Chincoteague Inlet and in the northern part of the subsegment, intermediate to wide elsewhere due to offshore shoals.

SHORELANDS USE
FASTLAND: Recreational (National Seashore) 97%, governmental (abandoned Coast Guard Station) 3%.
SHORE: Beach recreation.
NEARSHORE: Shellfishing, fishing.

OFFSHORE BOTTOM: In Toms Cove the bottom is sticky with tidal flats near shore and the bottom slopes to 11 feet deep. On the ocean side the bottom is sandy and varies from steeply sloping in the northern portion to gently sloping elsewhere, with offshore shoals.

WIND AND SEA EXPOSURE: On the ocean side from Fishing Point to the elbow of the hook the shoreline trends NW - SE; the fetch from the S is unlimited, from the SW is 8 miles and from the W is 3 miles. From the elbow of the hook to the parking lot the shoreline trends NE - SW; the fetch from the S is unlimited, from the SE is unlimited and from the E is unlimited. On the Toms Cove side the fetch across the cove is 1-2 miles and from the west is 3-4 miles.

OWNERSHIP: Federal.

FLOOD HAZARD: High, noncritical, most of the subsegment is under 5-10 feet. Low to medium at the abandoned Coast Guard Station.

WATER QUALITY: There are no data available.

BEACH QUALITY: Excellent; wide, clean sand beach on ocean side; accessible sand beaches in several places on the Toms Cove side.

SHORE EROSION SITUATION
EROSION RATE: Accretion, according to information at the National Seashore Visitor's Center the hook has built south and west approximately 5 miles (about 1,500 acres) since 1859. Short-term erosion occurs during storms.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: Sand fences which extend north from the elbow of the hook have caused the dunes to build up.

Suggested Action: None.

OTHER SHORE STRUCTURES: There is a pier at the abandoned Coast Guard Station, on Toms Cove.

POTENTIAL USE ENHANCEMENT: Low, as the use is under the jurisdiction of the National Park Service.

MAPS: C&GS, #1220, 1:80,000 scale, FENWICK ISLAND LIGHT to CHINCOTEAGUE INLET, 1973.
USGS, 7.5 Min.Ser. (Topo), CHINCOTEAGUE EAST, Va. Quadr., 1965.

PHOTOS: Aerial-VIMS 3Dec74 AC-5-77 to 80, AC-6-01.

Ground - VIMS 17Jul74 AC-4-54G, 55G.

ASSATEAGUE ISLAND, OCEAN SIDE,
ACCOMACK COUNTY, VIRGINIA
SUBSEGMENT 20E (Maps 35, 36, 37, 38)

EXTENT: 59,600 feet (11.3 mi.), the ocean side of Assateague Island from the parking lot at Bench Mark 4 to the Virginia - Maryland state line. In this subsegment the fastland and shoreline lengths are equivalent.

SHORELANDS TYPE
FASTLAND: Low shore with dunes.
SHORE: Wide sand beach.
NEARSHORE: Narrow width, sandy bottom.

SHORELANDS USE
FASTLAND: Preserved, Chincoteague National Wildlife Refuge, with some hunting allowed, birdwatching and hiking.
SHORE: Surf-fishing, beachcombing.
NEARSHORE: Fishing.

OFFSHORE BOTTOM: The bottom is sandy and slopes quite steeply. There are some subparallel offshore shoals.

WIND AND SEA EXPOSURE: The shoreline trends NNE - SSW and fetch is unlimited in each direction.

OWNERSHIP: Federal.

FLOOD HAZARD: Low to medium, sand fences, with their subsequent 10 to 15-foot vegetated dunes, are maintained.

WATER QUALITY: Satisfactory as of January 1974.

BEACH QUALITY: Excellent, the beach is wide, clean and gently sloping.

SHORE EROSION SITUATION
EROSION RATE: There are numerous areas of short-term erosion and deposition but on a long-term basis the area is relatively stable.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: Sand fences the length of the subsegment have stabilized the dunes.

Suggested Action: None.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Low, as the use is under the jurisdiction of the Bureau of Sport Fisheries and Wildlife.

MAPS: C&GS, #1220, 1:80,000 scale, FENWICK ISLAND LIGHT to CHINCOTEAGUE INLET, 1973.
USGS, 7.5 Min.Ser. (Topo.), WHITTINGTON POINT, Md. - Va. Quadr., 1964;
USGS, 7.5 Min.Ser. (Topo.), CHINCOTEAGUE EAST, Va. Quadr., 1965.

PHOTOS: Refer to photos for subsegments 20A, 20B, and 20C.

4.3 Segment and Subsegment Maps

MAP 2A

SCARBOROUGH AND CRADDOCK NECKS
TOPOGRAPHY AND CULTURE
Segments 1, 2A, 2B, 2C

// = Segment Boundary
/ = Subsegment Boundary

75° 55'

37° 37' 30"

1 MILE

2C

2B

2A

1

Milbys Point
Hyslop Marsh
NANDUA
MARSH
HYSLOP
Sandy Pt
Back Creek
CRADDOCK
752
CRADDOCK CREEK
Flat
Tidal
Hall Cove
Cem
SCARBOROUGH NECK
612
611
613
BM
West
Johns Pt
Taues Cr
Gaskins Pt
Scarborough Gut
Pons Pt
OCCOHANNOCK
Powells Bluff
Concord

37° 30'

75° 55'

80

MAP 2B

SCARBOROUGH AND CRADDOCK NECKS
SHORELANDS TYPES
Segments 1, 2A, 2B, 2C

FASTLAND
- Low Shore
- Low Shore with Bluff

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide

75° 55'

37° 37' 30"

0 1 MILE

Milbys Point

Huslop Marsh

NANDUA

MARSH

HYSLOP

Tidal

Sandy Pt

2C

Back Creek

CRADDOCK

752

CRADDOCK CREEK

2B

Cem

2A

SCARBOROUGH NECK

612

611

613

BM

Jones Pt

Gaskins Pt

Taues Cr

Pots Pt

Powells Bluff

OCCOHANNOCK

1

Concord

37° 30'

75° 55'

MAP 2C

SCARBOROUGH AND CRADDOCK NECKS
FASTLAND USE, OWNERSHIP, EROSION
Segments 1, 2A, 2B, 2C

USE
- Agricultural — A
- Unmanaged Wooded — W

OWNERSHIP
- Private — 1

EROSION
- Severe
- Moderate
- Slight or No Change — No Symbol

75° 55'

37° 37' 30"

1 MILE

Milbys Point

Hyslop Marsh

NANDUA MARSH

HYSLOP

CRADDOCK

Sandy Pt

Back Creek

CRADDOCK CREEK

Tidal Flat

Tidal Creek

Bell Cove

SCARBOROUGH NECK

Johns Pt

Taws Cr

Gaskins Pt

Scarborough Gut

Pons Pt

OCCOHANNOCK

Powells Bluff

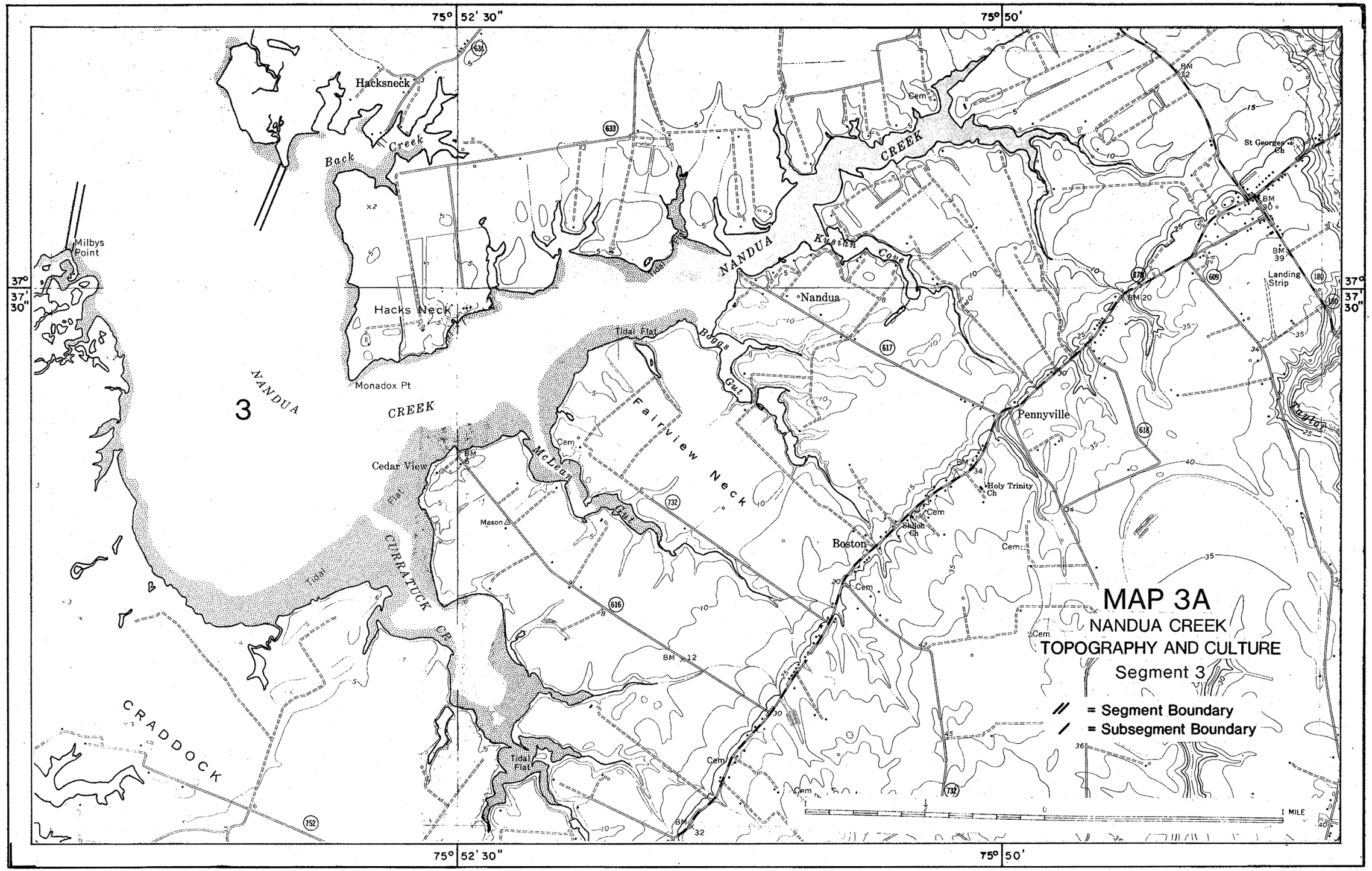
Cem

BM

752 612 611 613

2A 2B 2C

1 1A 1W


75° 52' 30"
75° 50'
37° 37' 30"
Hacksneck
Back Creek
Milbys Point
Hacks Neck
Monadox Pt
NANDUA CREEK
3
Cedar View
Tidal Flat
CURRATUCK CR
CRADDOCK
Mason
McLeon Gut
Fairview Neck
Tidal Flat
Boggs Gut
Nandua
Kyseon Cove
Pennyville
Boston
Holy Trinity Ch
Saloh Ch
St Georges Ch
Landing Strip
Cem
BM 12
BM 20
BM 30
BM 39
BM 34
BM 32
MAP 3A
NANDUA CREEK
TOPOGRAPHY AND CULTURE
Segment 3
// = Segment Boundary
/ = Subsegment Boundary
1 MILE

75° 52' 30"

75° 50'

37° 37' 30"

MAP 3B

NANDUA CREEK

SHORELANDS TYPES

Segment 3

3

NANDUA CREEK

FASTLAND

Low Shore

SHORE

Beach

Fringe Marsh

Extensive Marsh

Embayed Marsh

Hacksneck

Back Creek

Hacks Neck

Monadox Pt

Milbys Point

Cedar Bew

Mason

Nandua

Kiptum Cove

Tidal Flat

Briggs Gut

Fairview Neck

McLeans

Boston

Holy Tr Ch

Skidon Ch

St Georges Ch

Landing Strip

Cem

BM 12

BM 30

BM 39

BM 34

BM 32

CURRATUCK CR

CRADDOCK

633

634

617

616

732

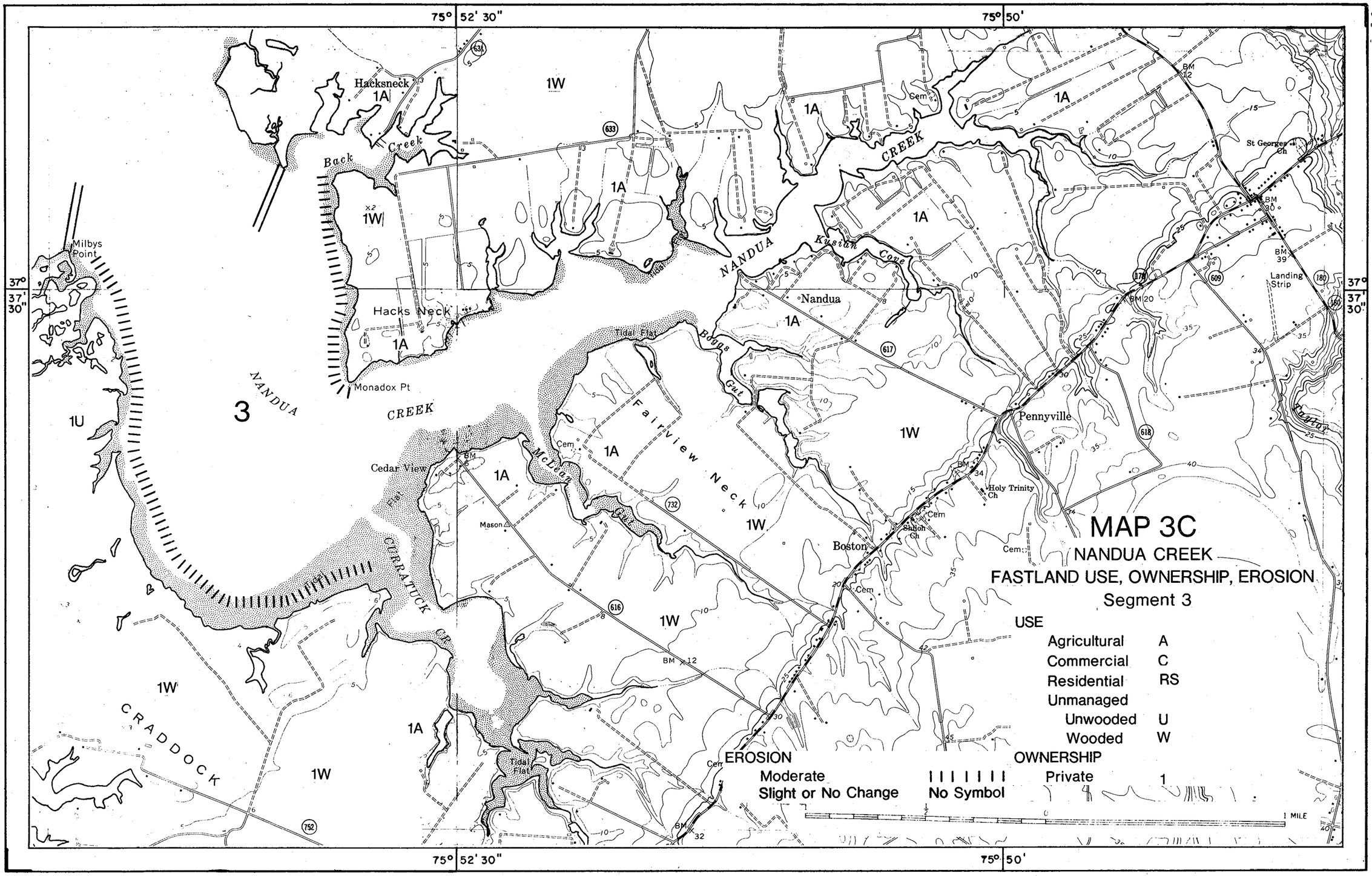
752

609

178

180

1 MILE


75° 52' 30"
75° 50'
37° 37' 30"
Hacksneck
1A
1W
Back Creek
633
Milbys Point
1U
Hacks Neck
Monadox Pt
NANDUA CREEK
3
Tidal Flat
Boggs Gut
Fairview Neck
Nandua
Cem
BM 12
St George's Ch
BM 30
BM 39
Landing Strip
BM 20
Pennyville
Holy Trinity Ch
Shiloh Ch
Boston
Cedar View
Mason
McVeas Gut
732
616
617
618
609
178
180
160
CURRATUCK CR
CRADDOCK
752
BM 32
BM 34
Tidal Flat
1 MILE
MAP 3C
NANDUA CREEK
FASTLAND USE, OWNERSHIP, EROSION
Segment 3
USE
Agricultural A
Commercial C
Residential RS
Unmanaged
Unwooded U
Wooded W
EROSION
Moderate
Slight or No Change
No Symbol
OWNERSHIP
Private 1

MAP 4A

HACKS NECK - PARKERS ISLAND

TOPOGRAPHY AND CULTURE

Segments 4 and 6A

// = Segment Boundary

/ = Subsegment Boundary

75° 52' 30"

37° 42' 30"

37° 40'

1 MILE

6A

4

Coffin Pt

Parkers I

Tidal Flat

Indian Pt

Chandler Marsh

Scarborough Island

Finneys Island

Tidal Flat

Tarkill Creek

West Point

Klondike Pt

Tidal Flat

PUNGOTEAGUE

Warehouse Pt

Buckland Gut

Bluff Pt

Honeck Cr

Tidal Flat

Smithville

630

632

Evergreen Ch

631

Tidal Flat

Butcher Creek

Tidal Flat

HACKS NECK

Mt Olive Ch

Hacks Neck

Coocheyville

633

Hacksneck

631

630

Cem

Tidal Flat

Back Creek

633

75° 52' 30"

75° 52' 30"

1 MILE

37° 42' 30"

MAP 4B

HACKS NECK - PARKERS ISLAND

SHORELANDS TYPES

Segments 4 and 6A

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Intermediate
- Wide

6A

4

Coffin Pt.
Parkers I.
Indian Pt.
Tidal Flat
Chandler Marsh
Scarborough Island
Finneys Island
Tarkill Creek
West Point
Klondike Pt.
PUNGOTEAGUE
Warehouse Pt.
Buckland Gut
Bluff Pt.
Hancock Cut
Smithville
630
632
631
633
634
Evergreen Ch
Mt Olive Ch
Coocheyville
Hacksneck
Hacks Neck
Butcher Gut
Back Creek
Cem
HACKS NECK

37° 40'

75° 52' 30"

MAP 4C

HACKS NECK - PARKERS ISLAND
FASTLAND USE, OWNERSHIP, EROSION
Segments 4and 6A

USE

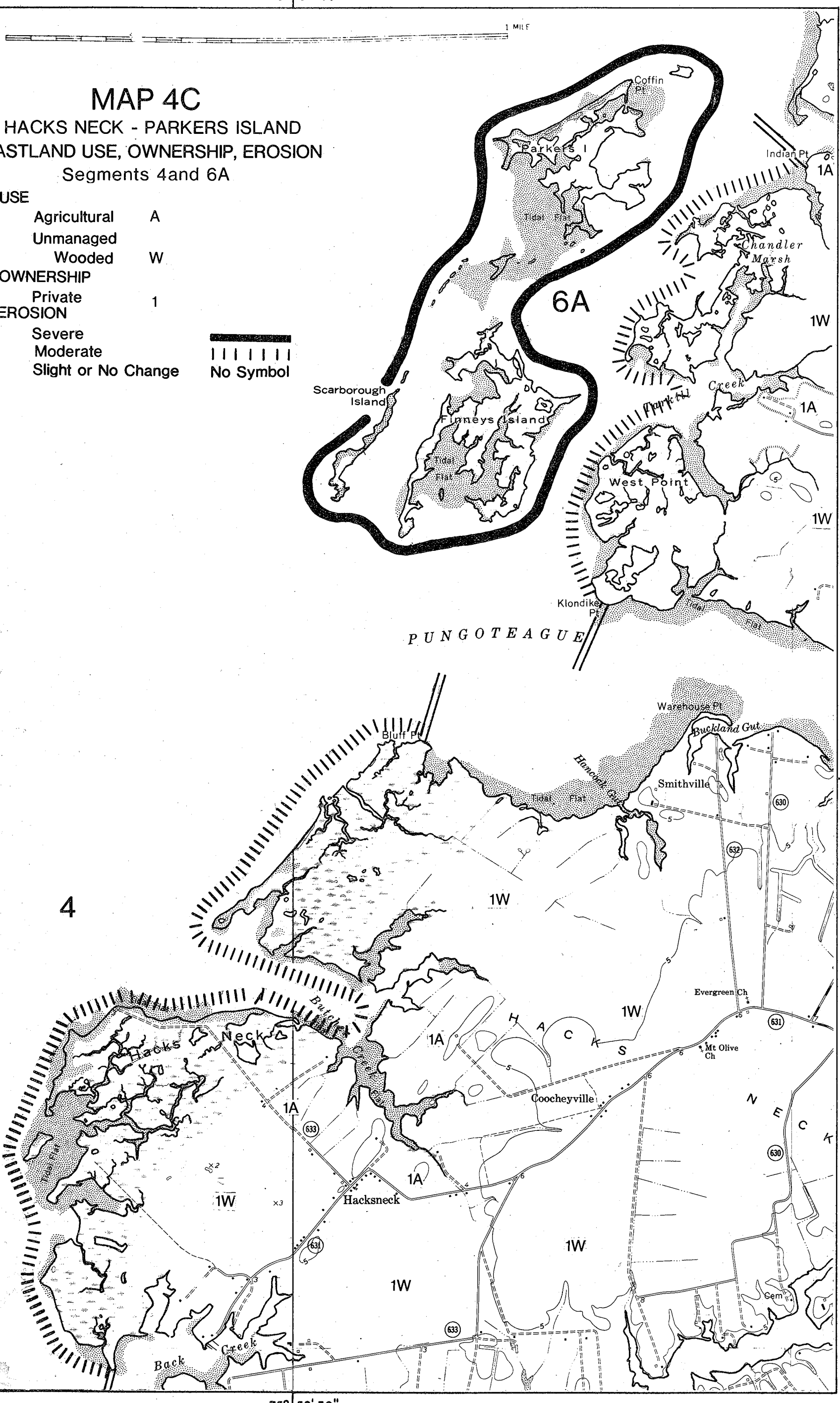
Agricultural	A
Unmanaged Wooded	W

OWNERSHIP

Private	1

EROSION

Severe	
Moderate	
Slight or No Change	No Symbol



75° 52' 30" | 75° 50' | 75° 47' 30"

37° 40'

PUNGOTEAGUE CREEK

5

Klondike Pt

Cem

Flat

Underhill Creek

Crockett Town

BM

Cem

637

Cree

Mount Nebo

Cem

BM 10

638

Pungoteague

Cem

634

Warehouse Pt

Buckland Gut

Bluff Pt

Hannabee Gut

Tidal Flat

Smithville

630

Horse Haze Creek

BM 6

Evans Wharf

Harborton

632

180

BM 7

Tidal Flat

Boggs Wharf

Eastern Shore Yacht and Country Club

628

YEO NECK

Warehouse Prong

BM 24

Filtration Plant

South Accomack Sch

718

628

BM

Bobtown

Evergreen Ch

631

Mt Olive Ch

Butcher Gut

HACKS NECK

Coocheyville

BM 7

633

630

Paulak

Cem

BM 12

Hacksneck

X3

631

633

BM 16

609

620

Cem

MAP 5A

PUNGOTEAGUE CREEK

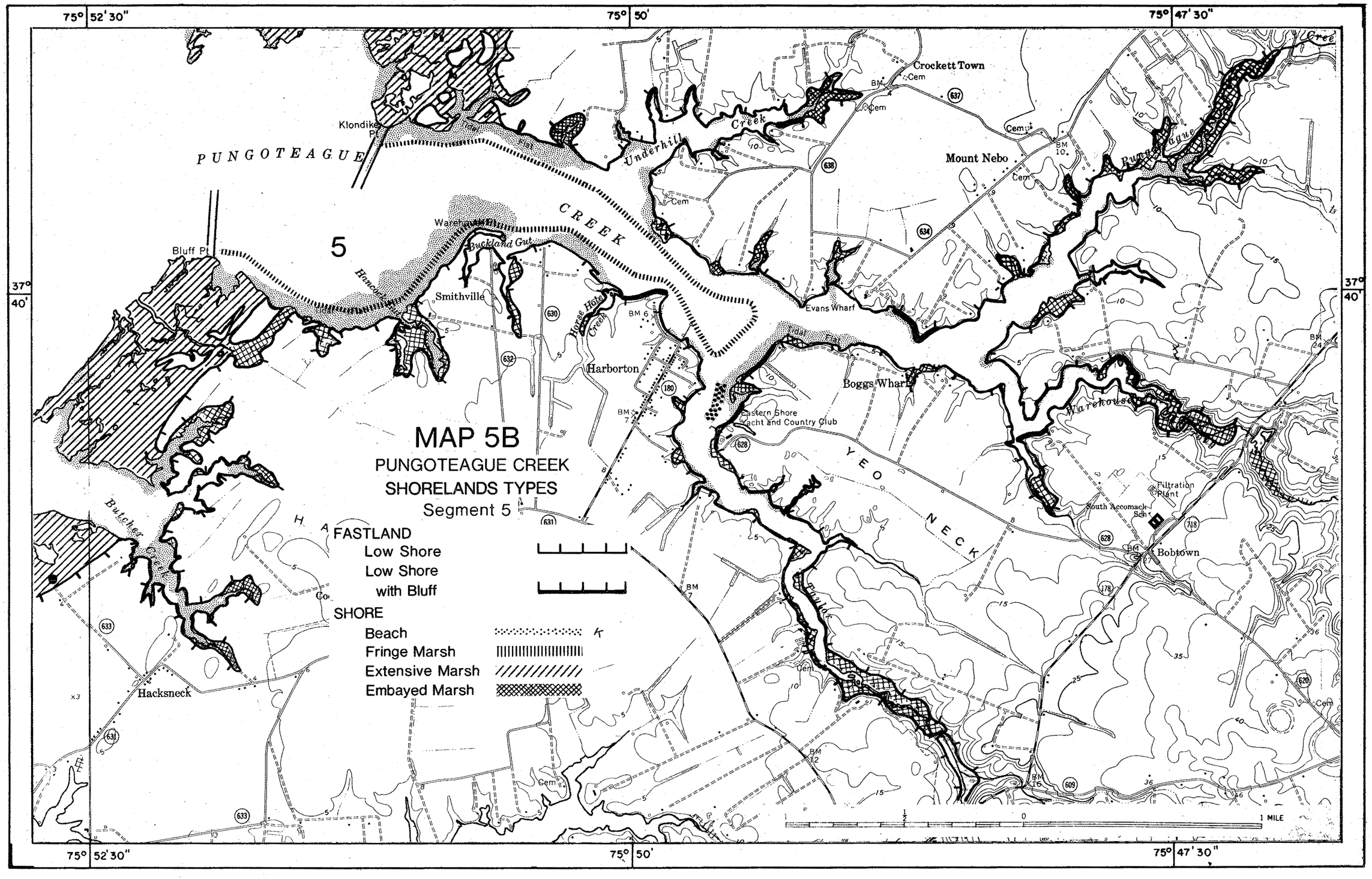
TOPOGRAPHY AND CULTURE

Segment 5

= Segment Boundary

= Subsegment Boundary

1 0 1 MILE


75° 52' 30"
75° 50'
75° 47' 30"
37° 40'
PUNGOTEAGUE CREEK
Klondike Pt
Bluff Pt
Wareham Pt
Buckland Gut
Honga River
Smithville
Horse Hole Creek
Harborton
Underhill Creek
Crockett Town
Cem
BM
Mount Nebo
Evans Wharf
Boggs Wharf
Eastern Shore Yacht and Country Club
Y E O
N E C K
Warehouse Creek
Filtration Plant
South Accomack Sch
Bobtown
Butcher Gut
Hacksneck
5
MAP 5B
PUNGOTEAGUE CREEK
SHORELANDS TYPES
Segment 5
FASTLAND
Low Shore
Low Shore with Bluff
SHORE
Beach
Fringe Marsh
Extensive Marsh
Embayed Marsh
1 0 1 MILE

MAP 5C

PUNGOTEAGUE CREEK

FASTLAND USE, OWNERSHIP, EROSION

Segment 5

USE

Agricultural	A
Commercial	C
Recreational	RC
Residential	RS
Unmanaged Wooded	W

OWNERSHIP

Private	1

EROSION

Slight or No Change	No Symbol

MAP 6A

ONANCOCK CREEK
TOPOGRAPHY AND CULTURE

Segments 6B and 7

// = Segment Boundary

/ = Subsegment Boundary

75° 50' | 75° 47' 30" | 75° 45'

37° 42' 30"

6B

7

ONANCOCK CREEK

BROADWAY NECK

Sound Beach

Parkers Marsh

Back Creek

Tidal Flat

Ware Pt

Chesconessex

Evans

Hale

Poplar Cove

Poplar Cove

Landing Strip

Cem

Bailey Pt

Bailey Neck

Finneys Neck

Parkers Creek

Finneys Creek

Cedar Creek

Onley Pt

East Point

Thicket Pt

Broadway Landing

Broadway Ch

Cashville

Indian Pt

Matchotank Creek

Chandler Marsh

Finneys Wharf

Leatherberry Ck

South Branch

Onancock

Onancock Cem

Radio Tower

Radio Tower

Sewage Disposal

High Sch

BM 7

BM 10

BM 14

BM 14

1 0 1 MILE

MAP6B

ONANCOCK CREEK
SHORELANDS TYPES
Segments 6B and 7

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide

6B

7

75° 50'
75° 47' 30"
75° 45'
37° 42' 30"

Sound Beach
Parkers Marsh
Back Creek
Chesconessex
Evans
Ware Pt
ONANCOCK
Poplar Cove
Landing Strip
Bailey Pt
East Point
CREEK
Cedar Creek
Onley Pt
Cem
Bailey Neck
Finneys Creek
Parkers Creek
Thickly Pt
Indian Pt
Matchotank Creek
Chandler Point
BROADWAY NECK
Broadway Ch
Cashville
BM 7
BM 9
BM 10
BM 14
Finneys Wharf
Lethbervery Ct
South Branch
Onancock
Onancock Cem
Radio Tower
Sewage Disposal
High Sch
Tidal Flat
655
653
654
642
643
641
638
637
718
767
635

1 0 1 MILE

MAP 6C

ONANCOCK CREEK

FASTLAND USE, OWNERSHIP, EROSION

Segments 6B and 7

USE

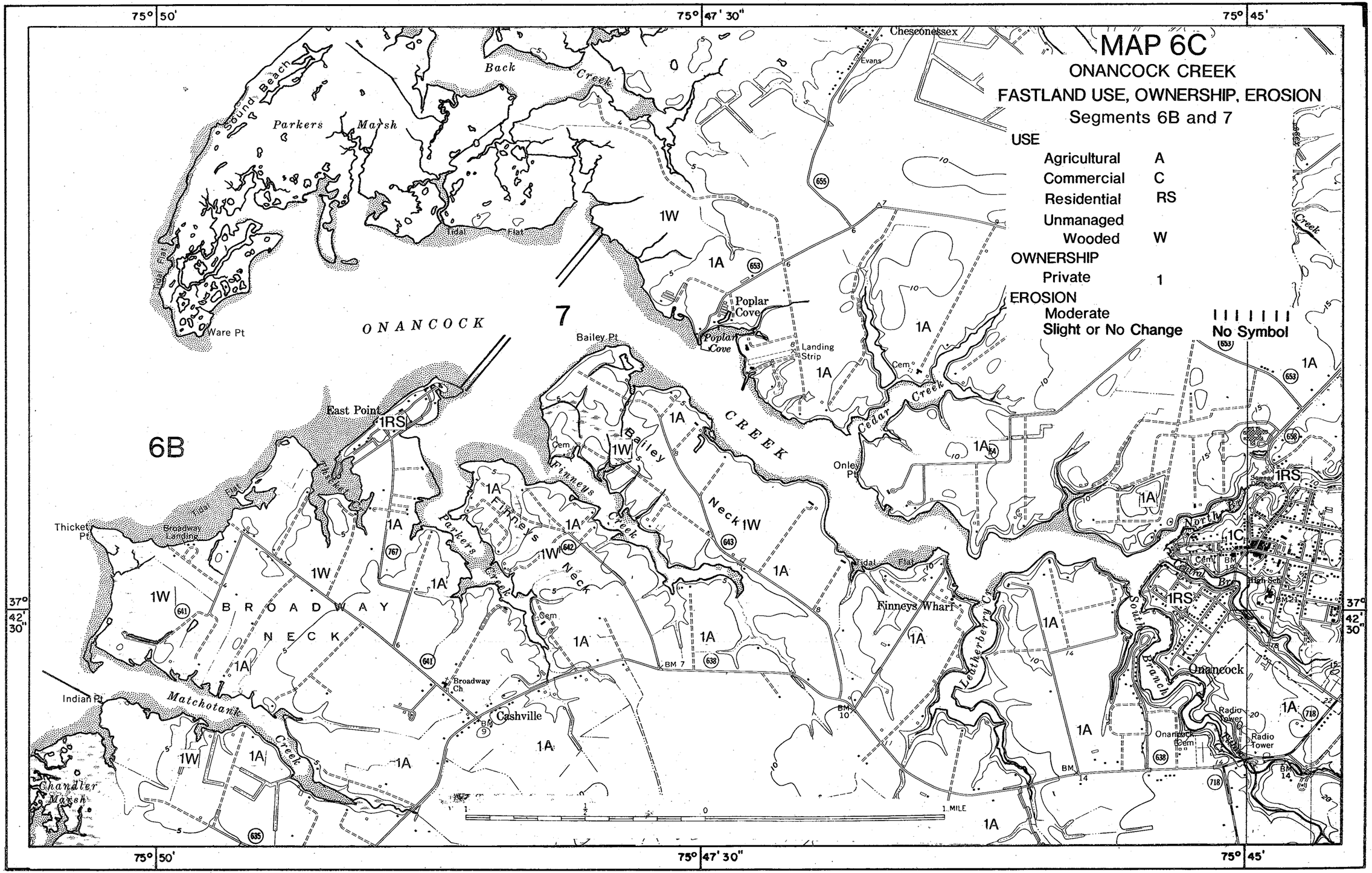
Agricultural	A
Commercial	C
Residential	RS
Unmanaged Wooded	W

OWNERSHIP

Private	1

EROSION

Moderate	
Slight or No Change	No Symbol



MAP 7A

PARKERS MARSH - BIG MARSH
TOPOGRAPHY AND CULTURE
Segments 8A, 8B, 8C (partial)

// = Segment Boundary
/ = Subsegment Boundary

75° 47' 30"

1/2 0 1 MILE

West Marsh Tump
Camp Island
The Thorofare
Russell Island
ISLAND BAY
Old Beach
Back Cr.
Long Island
BIG MARSH
Beach Island
Back Log Gut
Log Ridge
8C
Pompco Creek
Rogue Island
Tobacco Island
Tidal Creek
Factory Pt
Boat Ramp
Chesconessex Creek
Chesconessex
8B
South Chesconessex
8A
Back Creek
Parkers Marsh
Evans
Cem.

37° 47' 30"
37° 45'

75° 47' 30"

MAP 7B

PARKERS MARSH - BIG MARSH

SHORELANDS TYPES

Segments 8A, 8B, 8C (partial)

FASTLAND
Low Shore

SHORE
Beach
Fringe Marsh
Extensive Marsh
Embayed Marsh

NEARSHORE
Intermediate
Wide

75° 47' 30"

0 1/2 1 MILE

West Marsh Tump
Camp Island
The Thoroughfare
Russell Island
ISLAND BAY
Old Beach
Back Cr
Beach Island
BIG MARSH
Cunjo Island
Bodie Wash Gut
8C
Pompco Creek
Rogue Island
Tobacco Island
Tobacco Island Flat
Factory Pt
Boat Ramp
Chesconessex Creek
Chesconessex
802
656
782
8B
8A
Cem.
South Chesconessex
Evans
Back Creek
Parkers Marsh

37° 47' 30"
37° 45'

96

75° 47' 30"

0 1 MILE

MAP 7C

PARKERS MARSH - BIG MARSH
EASTLAND USE, OWNERSHIP, EROSION
Segments 8A, 8B, 8C (partial)

USE

Agricultural	A
Commercial	C
Residential	RS
Unmanaged Wooded	W

OWNERSHIP

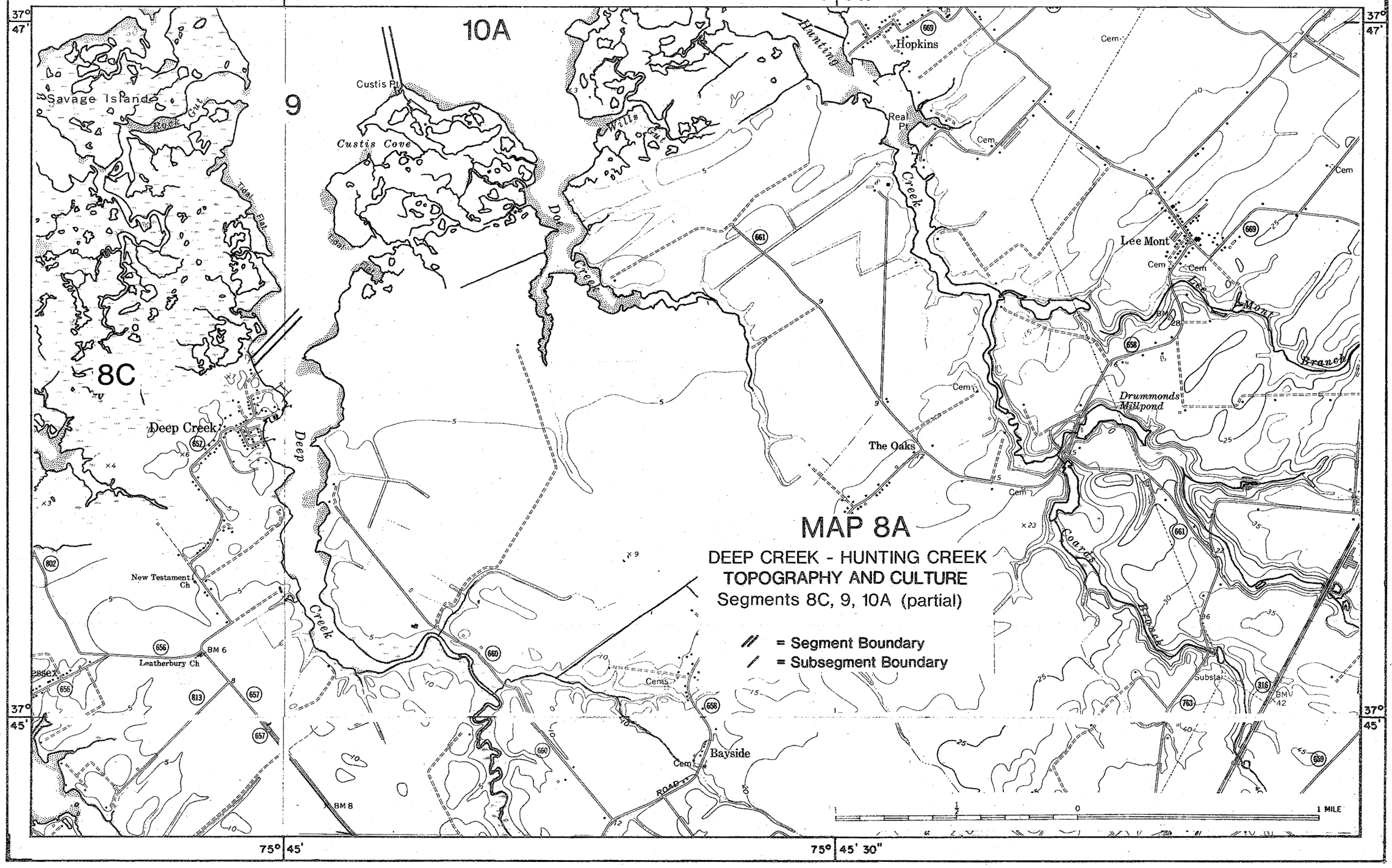
Private	1

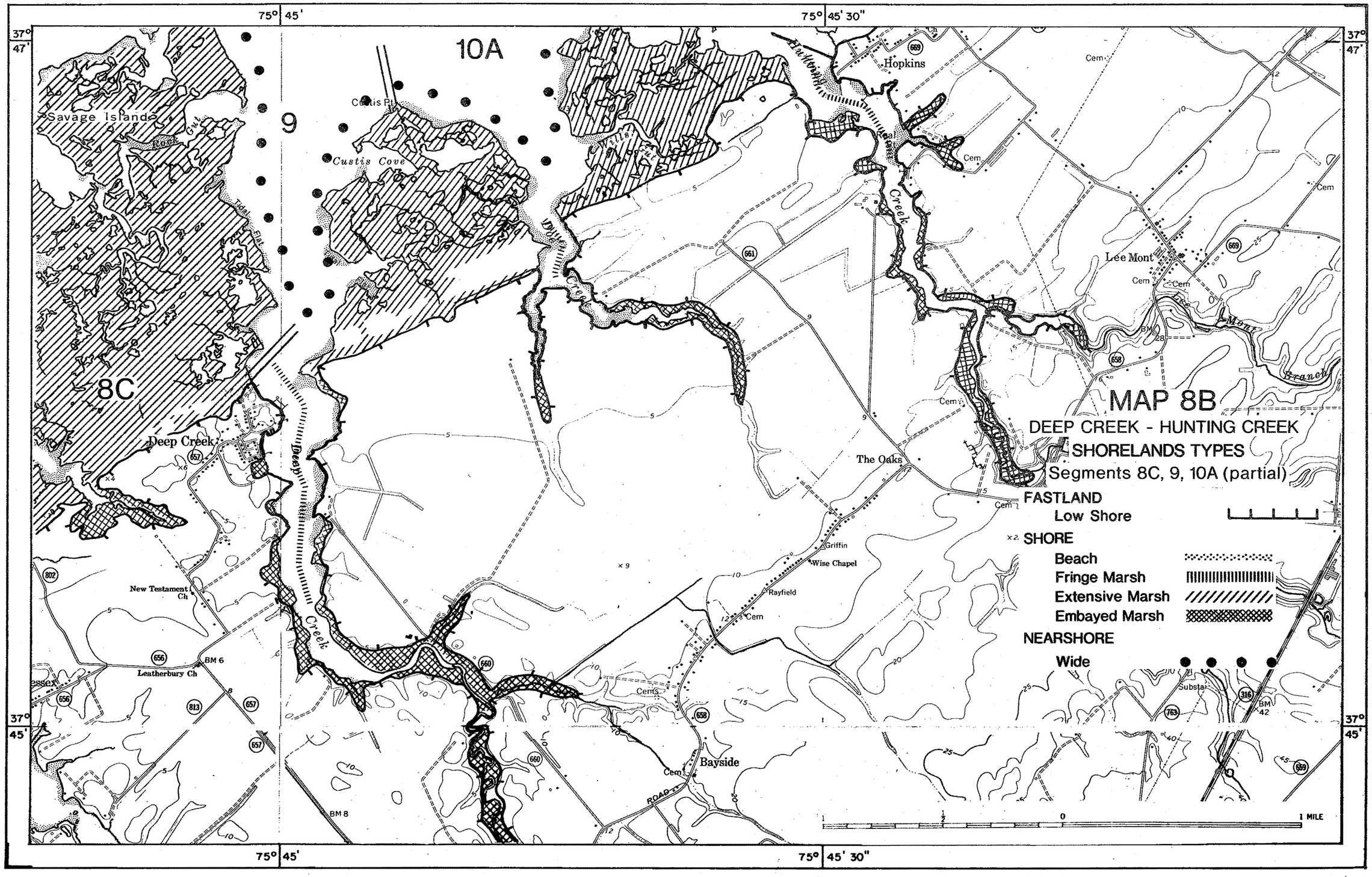
EROSION

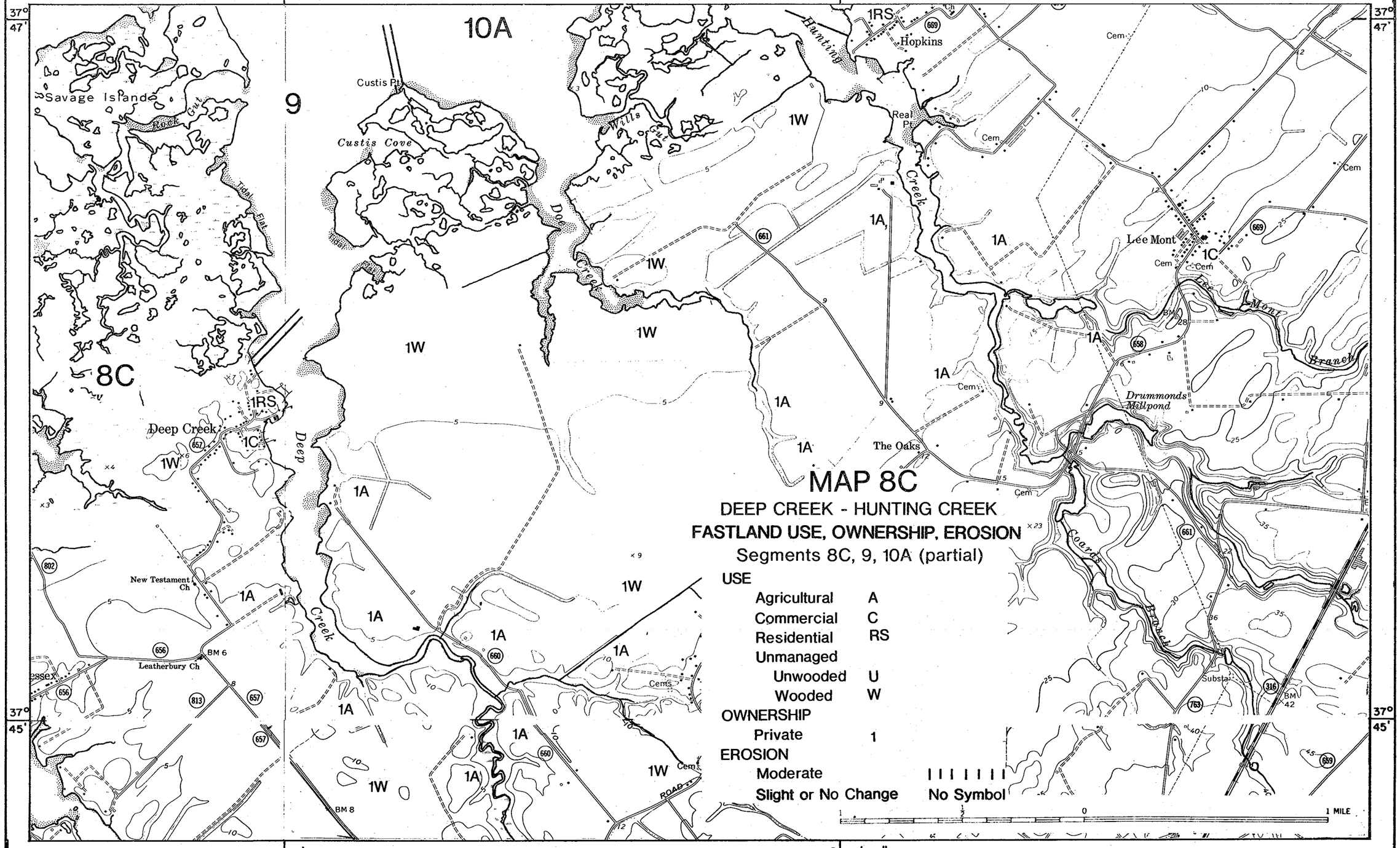
Moderate	| | | | | | |
Accretional	+ + + +
Slight or No Change	No Symbol

West Marsh Tump
Camp Island
The Thoroughfare
Russell Island
ISLAND BAY
Old Beach
Back Cr
Beach Island
BIG MARSH
Cond Island
Baker Wall Gut
Long Ridge
8C
Pompco Creek
Rogue Island
Tobacco Island
Factory Pt
Boat Ramp
Chesconessex Creek
802
1W
Chesconessex
1RS
656
1C
8B
782
1W
1A
Cem
South Chesconessex
8A
Evans
1A
1W
Back Creek
Parkers Marsh

37° 47' 30"
37° 45'
75° 47' 30"


75° 45'
75° 45' 30"
37° 47'
37° 45'
10A
9
8C
Savage Island
Cook Cut
Tidal Flat
Custis Pt
Custis Cove
Deep Creek
Deep Creek
Wills Cut
Hunting Creek
Hopkins
Real Pt
Cem
Lee Mont
Cem
Cem
Lee Mont Br
Drummonds Millpond
Cem
The Oaks
Cem
Coards Br
Deep Creek
New Testament Ch
Leatherbury Ch
BM 6
BM 8
Cems
Cem
Bayside
ROAD
Substa
BM 42
MAP 8A
DEEP CREEK - HUNTING CREEK
TOPOGRAPHY AND CULTURE
Segments 8C, 9, 10A (partial)
= Segment Boundary
= Subsegment Boundary
1 0 1 MILE


75° 45'
75° 45' 30"
37° 47'
37° 45'
10A
9
8C
Savage Islands
Rock Gut
Tidal Flat
Curtis Pt
Custis Cove
Deep Creek
Deep Creek
Hopkins
Hawkins Pt
Creek
Cem
Lee Mont
Mont
Branch
BM 28
658
661
669
857
802
New Testament Ch
656
Leatherbury Ch
BM 6
813
657
660
BM 8
The Oaks
Griffin
Wise Chapel
Rayfield
Cem
Bayside
ROAD
763
316
BM 42
Substa
MAP 8B
DEEP CREEK - HUNTING CREEK
SHORELANDS TYPES
Segments 8C, 9, 10A (partial)
FASTLAND
Low Shore
×2 SHORE
Beach
Fringe Marsh
Extensive Marsh
Embayed Marsh
NEARSHORE
Wide
1 0 1 MILE


75° 45'
75° 45' 30"
37° 47'
37° 45'
Savage Island
Rock Gut
Tidal Flat
Custis Pt.
Custis Cove
Tidal Flat
Wills Gut
Hunting Creek
Dog Cove
Deep Creek
Hopkins
Real Pt.
Lee Mont
Lee Mont Branch
Drummonds Millpond
The Oaks
Deep Creek
New Testament Ch
Leatherbury Ch
Cems
Substa
ROAD
Coards Branch
BM 6
BM 8
BM 42
10A
9
8C
1W
1A
1C
1RS
MAP 8C
DEEP CREEK - HUNTING CREEK
FASTLAND USE, OWNERSHIP, EROSION
Segments 8C, 9, 10A (partial)
USE
Agricultural A
Commercial C
Residential RS
Unmanaged
Unwooded U
Wooded W
OWNERSHIP
Private 1
EROSION
Moderate
Slight or No Change No Symbol
1 0 1 MILE

MAP 9A

WEBB ISLAND - JOBES ISLAND
TOPOGRAPHY AND CULTURE
Segments 10A and 10B (partial)

// = Segment Boundary
/ = Subsegment Boundary

1 MILE

10B

10A

75° 45'
75° 42
37° 50'
37° 47' 30"
75° 45'
75° 42' 30"

Bagwell Cove
Simpson Pt
Simpson Bend
Jobes Island
Gut
Cedar Cove
Green Ditch
France Creek
Young Creek
Graven Pt
Guilford
Cats Hammock
682
Peters Pt
Peters Hammock
Peters Tump
The Ridge
Halfmoon Pt
Halfmoon Island
Zare Pt
Little Back Creek
Marks Island
Jimmys Gut
676
Cem
Clam
675
St Thomas Ch
674
Jacks Island
The Ditches
THE THOROFARE
Scott Island
Sandy Pt
Webb Island
Canoedas Pt
Thorofare Hill
The Notch
Weir Pt
Bagwell Creek
Dix Hammock
Dix Cove
Rue Gut
Parker Landing
Katy Young
Justisville
673
675
Calvary Ch
Flannegan Pt
Rainy Pt

MAP 9B

WEBB ISLAND - JOBES ISLAND

SHORELANDS TYPES

Segments 10A and 10B

FASTLAND
- Low Shore

SHORE
- Beach
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide

10A

10B

75° 45'

75° 42'

37° 50'

37° 47' 30"

Halfmoon Pt
Halfmoon Island
Scott Island
Rainy Pt
Webb Island
Canoedas Pt
Thorofare Hill
Sandy Pt
Jacks Island
Weir Pt
Flannegan Pt
The Notch
THOROFARE
Zare Pt
Peters Pt
Peters Hammock
Peters Tump
France Creek
Cedar Gut
Simpson Pt
Simpson Bend
Bagwell Cove
Jobes Island
Graven Pt
Guilford
Cats Hammock
Young Creek
The Ridge
Little Back Creek
Marks Island
Dix Hammock
Dix Cove
Bagwell Creek
Jimmy Gut
Clam
St Thomas Ch
Parker Landing
Justisville
Katy Young
Calvary Ch
Cem
675
674
673

MAP 9C

WEBB ISLAND - JOBES ISLAND

FASTLAND USE, OWNERSHIP, EROSION

Segments 10A and 10B (partial)

USE	
Agricultural	A
Residential	RS
Unmanaged Wooded	W
OWNERSHIP	
Private	1
EROSION	
Moderate	
Slight or No Change	No Symbol

1 MILE

75° 45'

75° 42

37° 50'

37° 47' 30"

10A

10B

Halfmoon Pt

Halfmoon Island

Scott Island

Webb Island

Canoedas Pt

Thorofare Hill

Rainy Pt

Flannegan Pt

Sandy Pt

Weir Pt

Jacks Island

Marks Island

Zara Pt

Simpson Pt

Simpson Bend

Peters Pt

Peters Hammock

Peters Tump

Bagwell Cove

Lobes Island

Graven Pt

Guilford

Cats Hammock

Dix Hammock

Justisville

Parker Landing

St Thomas Ch

Calvary Ch

Clam

Cem

THE THOROFARE

The Notch

Little Back Creek

The Ditches

Green Ditch

Young Creek

The Ridge

Timmys Gut

Bagwell Creek

Rue Gut

Kathy Young

Dix Cove

1W

1RS

MAP 10A

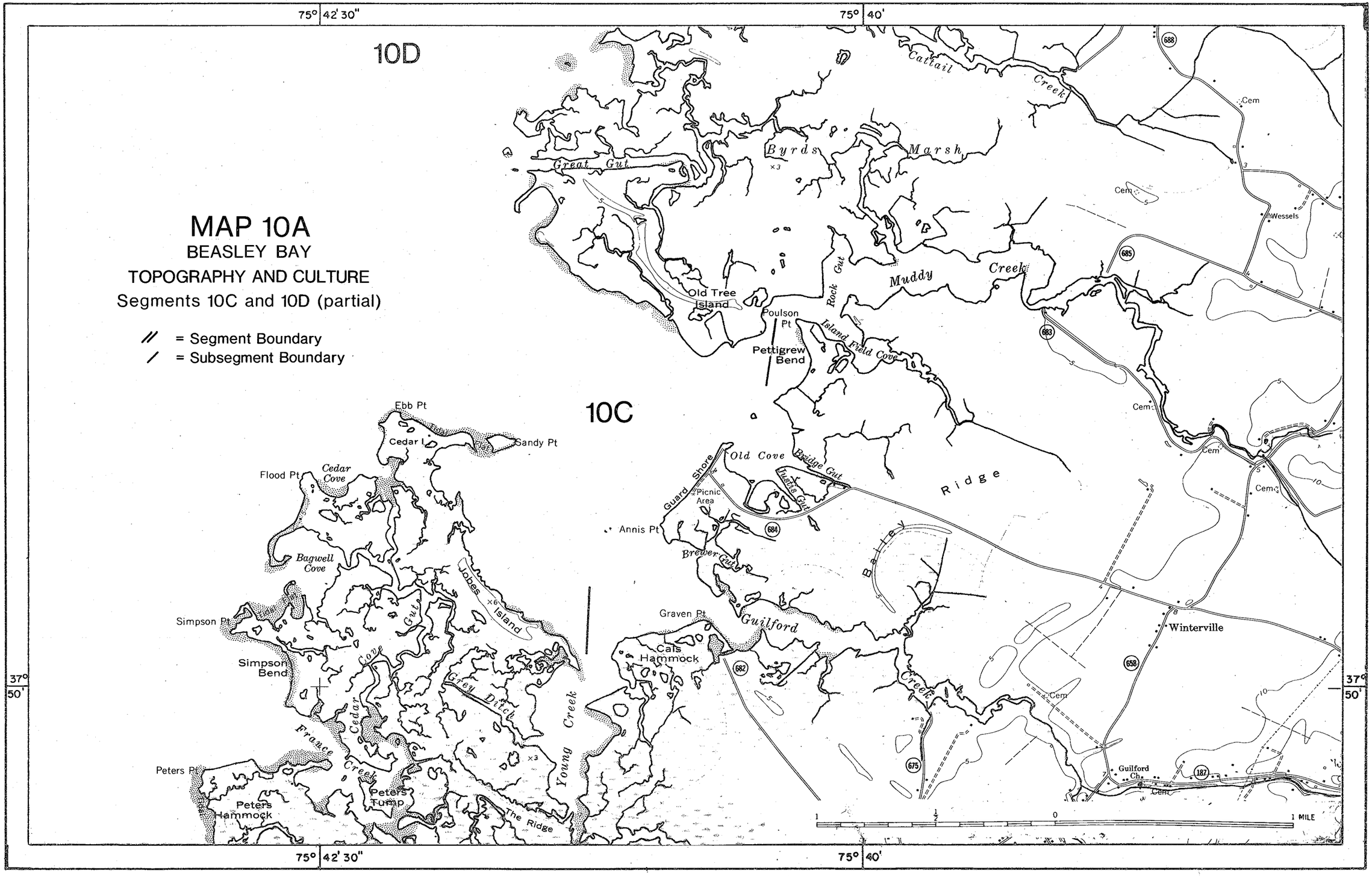
BEASLEY BAY

TOPOGRAPHY AND CULTURE

Segments 10C and 10D (partial)

// = Segment Boundary

/ = Subsegment Boundary



MAP10B

BEASLEY BAY
SHORELANDS TYPES
Segments 10C and 10D

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide

10D

10C

75° 42' 30"

75° 40'

37° 50'

Great Gut
Byrds Marsh
Gut
Creek
Old Tree Island
Rock Gut
Muddy Creek
Poulson Pt
Pettigrew Bend
Island Field Cove
Cem
Wessels
Ebb Pt
Cedar I
Sandy Pt
Flood Pt
Cedar Cove
Guard Shore
Old Cove
Bridge Gut
Marina Area
Ridge
Annis Pt
Brewer Gut
Bagwell Cove
Tides
Island
Graven Pt
Guilford
Simpson Pt
Cove Gut
Cats Hammock
Winterville
Simpson Bend
Green Ditch
Creek
France Creek
Young Creek
Peters Pt
Peters Hammock
Peters Tump
The Ridge
Guilford Ch
1 0 1 MILE

MAP 10C

BEASLEY BAY

FASTLAND USE, OWNERSHIP, EROSION

Segments 10C and 10D (partial)

USE		
Agricultural	A	
Unmanaged		
Wooded	W	
OWNERSHIP		
Private	1	
EROSION		
Moderate		| | | | | | |
Slight or No Change		No Symbol

10D

10C

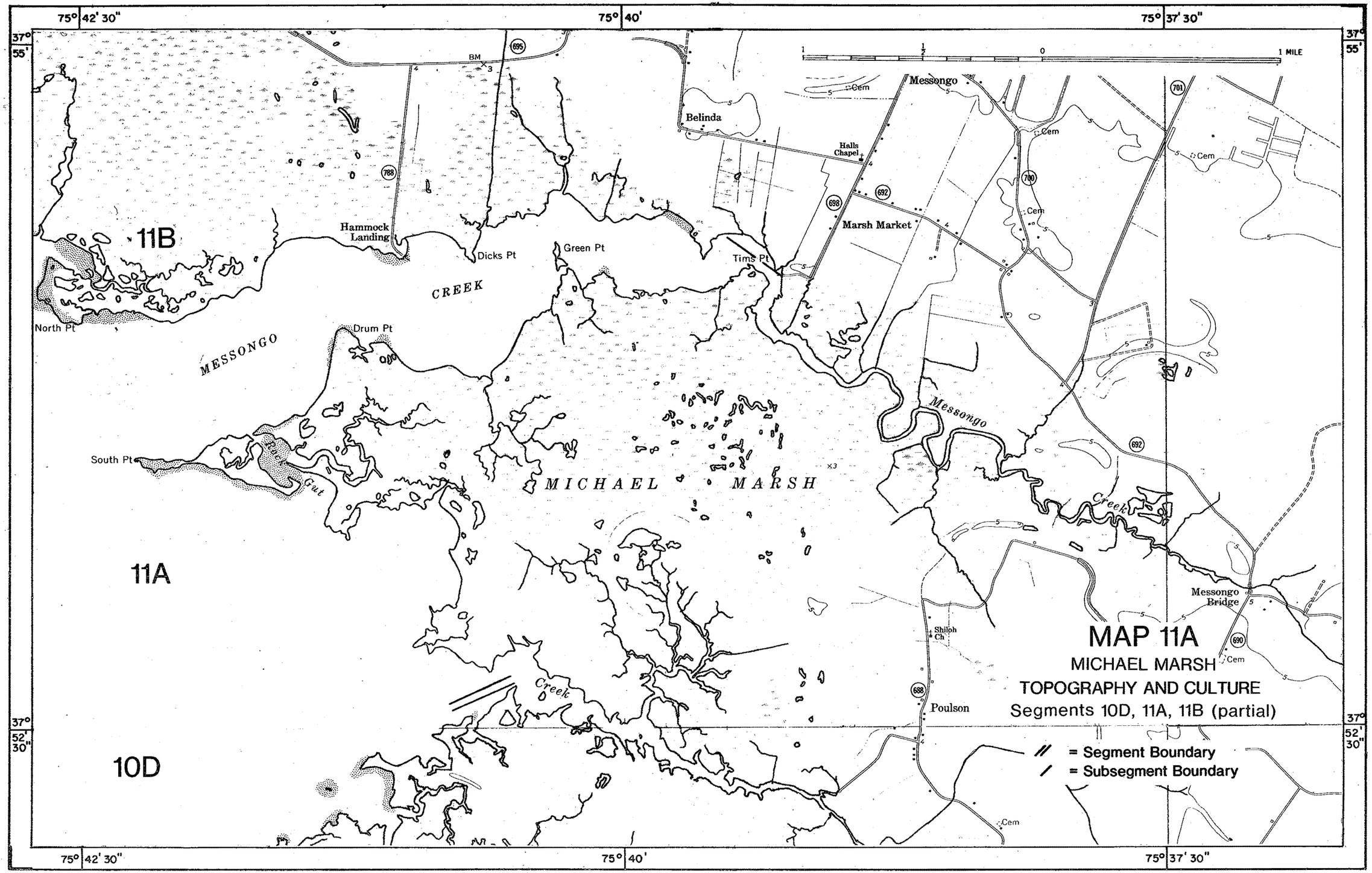
75° 42' 30"

75° 40'

37° 50'

Ebb Pt
Cedar I
Sandy Pt
Flood Pt
Cedar Cove
Bagwell Cove
Simpson Pt
Simpson Bend
Peters Pt
Peters Hammock
Peters Tump
France Creek
Cedar Cove Gut
Jobes Island
Grey Ditch
Young Creek
The Ridge
Graven Pt
Cats Hammock
Guilford Creek
Old Cove
Bridge Gut
Guard Shore
Picnic Area
Justice Gut
Annis Pt
Brewer Gut
Bailey Ridge
Cattail Creek
Great Gut
Byrds Marsh
Old Tree Island
Poulson Pt
Pettigrew Bend
Rock Gut
Muddy Creek
Island Field Cove
Wessels
Winterville
Guilford Ch.
Cem
1W
1A
688
685
683
684
882
658
675
187

1 0 1 MILE


75° 42' 30"
75° 40'
75° 37' 30"
37° 55'
37° 52' 30"
1 0 1 MILE
11B
11A
10D
BM
695
788
Hammock Landing
Dicks Pt
Green Pt
Tims Pt
CREEK
North Pt
Drum Pt
MESSONGO
South Pt
Reed Gut
MICHAEL MARSH
Creek
Belinda
Halls Chapel
Cem
Messongo
701
700
692
698
Marsh Market
Messongo Creek
Messongo Bridge
690
Shiloh Ch
688
Poulson
MAP 11A
MICHAEL MARSH
TOPOGRAPHY AND CULTURE
Segments 10D, 11A, 11B (partial)
// = Segment Boundary
/ = Subsegment Boundary

MAP 11B

MICHAEL MARSH

SHORELANDS TYPES

Segments 10D, 11A, 11B (partial)

FASTLAND

Low Shore

SHORE

Extensive Marsh

Embayed Marsh

NEARSHORE

Wide

1 MILE

75° 42' 30" | 75° 40' | 75° 37' 30"

37° 55'

37° 52' 30"

11B

11A

10D

Hammock Landing

Dicks Pt

Green Pt

Tims Pt

CREEK

North Pt

Drum Pt

MESSONGO

South Pt

Gut

MICHAEL MARSH

Creek

Belinda

Halls Chapel

Marsh Market

Messongo

Cem

BM

695

698

692

688

690

Messongo Creek

Messongo Bridge

Shiloh Ch

Poulson

MAP 11C

MICHAEL MARSH

FASTLAND USE, OWNERSHIP, EROSION

Segments 10D, 11A, 11B (partial)

USE

Agricultural	A
Residential	RS
Unmanaged Wooded	W

OWNERSHIP

Private	1

EROSION

Moderate	
Slight or No Change	No Symbol

75° 42' 30" | 75° 40' | 75° 37' 30"

37° 55' | 37° 52' 30"

11B | 11A | 10D

MESSONGO CREEK | MICHAEL MARSH | Messongo Creek

North Pt | Drum Pt | South Pt | Hammock Landing | Dicks Pt | Green Pt | Tims Pt | Belinda | Halla Chapel | Marsh Market | Messongo | Shiloh Ch | Poulson | Messongo Bridge

1W | 1A | 1RS

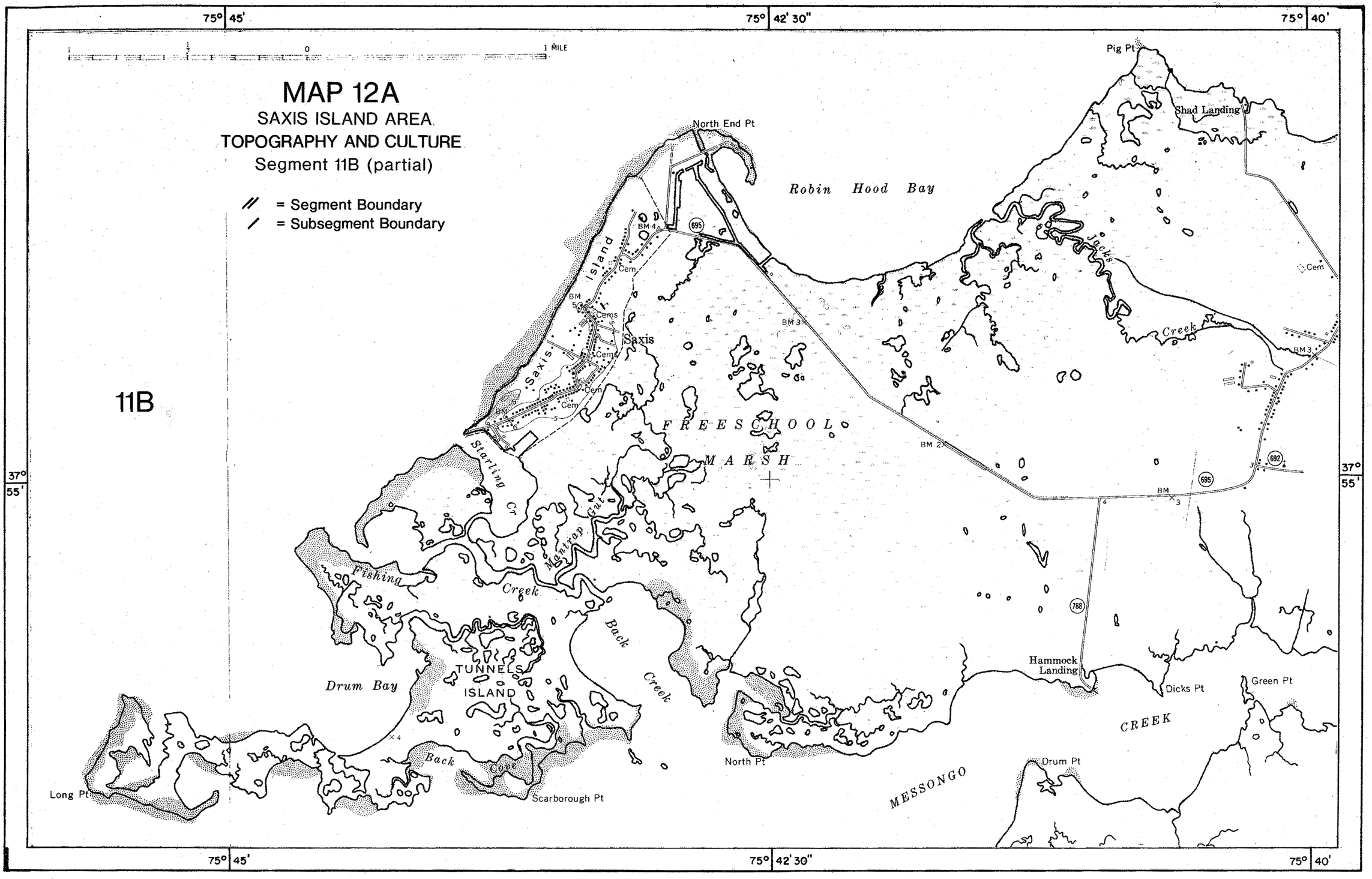
BM | Cem | 1 MILE

MAP 12A

SAXIS ISLAND AREA
TOPOGRAPHY AND CULTURE
Segment 11B (partial)

// = Segment Boundary
/ = Subsegment Boundary

11B



MAP 12B

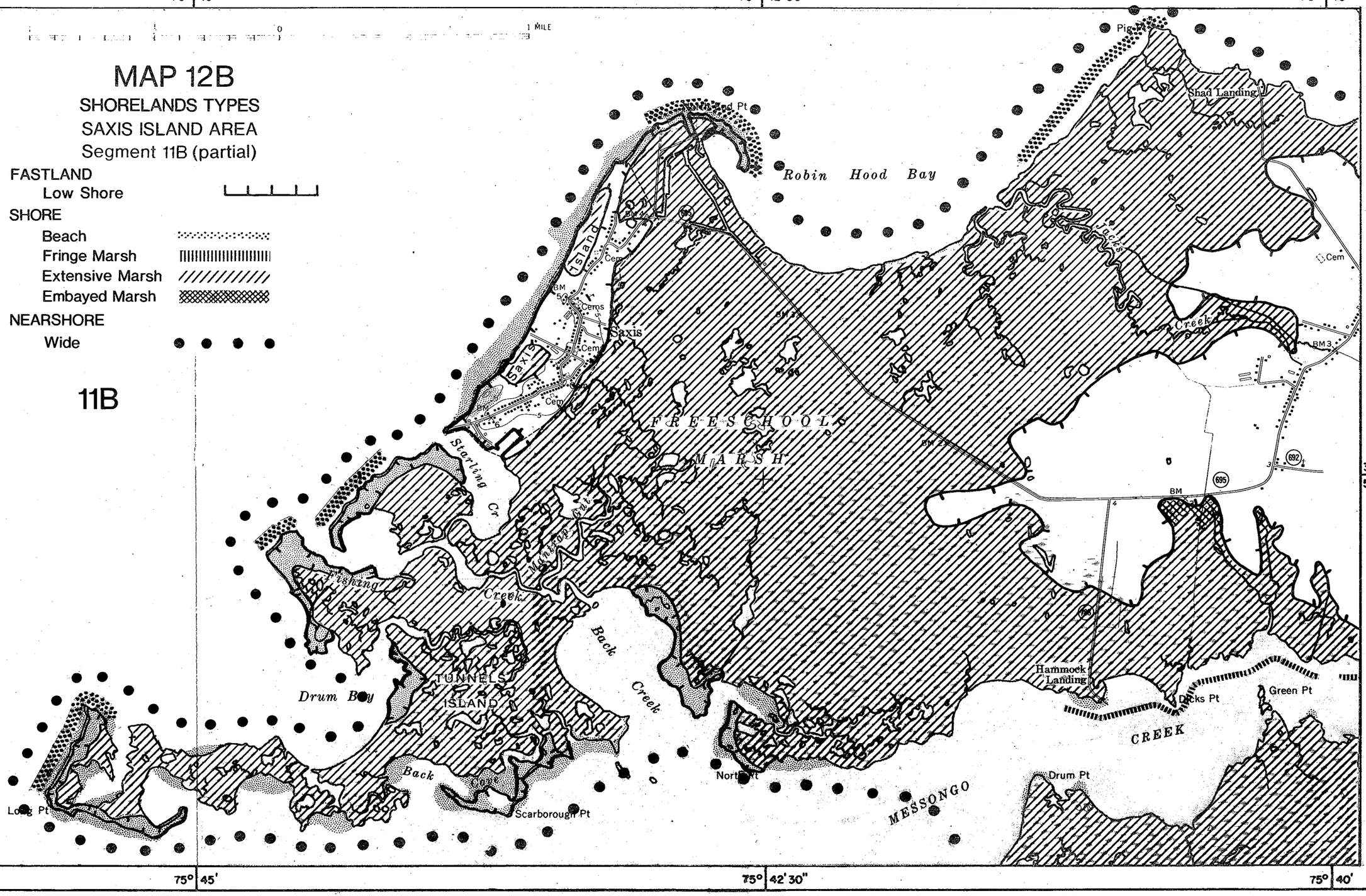
SHORELANDS TYPES
SAXIS ISLAND AREA
Segment 11B (partial)

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide

11B



MAP 12C

SAXIS ISLAND AREA

FASTLAND USE, OWNERSHIP, EROSION

Segment 11B (partial)

USE

Agricultural	A
Commercial	C
Industrial	I
Residential	RS
Unmanaged	
Wooded	W

OWNERSHIP

Private	1

EROSION

Severe	▬▬▬
Moderate	| | | | | | |
Accretional	+ + + +
Slight or No Change	No Symbol

1 0 1 MILE

75° 45' 75° 42' 30" 75° 40'

37° 55'

North End Pt
Robin Hood Bay
Shad Landing
Pi
1W
Jacks Creek
Cem
BM 4
695
BM 5
1RSm
1C
Cems
Saxis
1I
Cem
Saxis Island
1RS
Cem
BM 3
1A
FREESCHOOL MARSH
BM 2
692
BM
Starling Cr
Mantrap Cut
Fishing Creek
Back Creek
TUNNELS ISLAND
Drum Bay
Back Cove
Long Pt
Scarborough Pt
Hammock Landing
Dicks Pt
Green Pt
CREEK
Drum Pt
MESSONGO
788

MAP 13A

SANFORD - BULLBEGGER
TOPOGRAPHY AND CULTURE
Segments 11B and 11C (partial)

// = Segment Boundary
/ = Subsegment Boundary

75° 40'
75° 37' 30"
75° 35'
38° 57' 30"
38° 55'

11B
11C
ACCOMACK CO
SOMERSET CO

Canal
Fair Island
Wiltz
Williams Pt
Pig Pt
Shad Landing
Persimmon Pt
Flag Pond Landing
Jacks Creek
Sanford
BM 3
Cem
Pilgrim Ch
BM 4
Grotons
Pocomoke Ch
BM
St Johns Ch
Mt Olive Ch
Songo
Historical Monument
Holdens Creek
Line Gut
Jolleys Neck
DOUBLE DITCHES
Bullbegger
BM 4
BM 8
BM 9
Sandpit
Jenkins Bridge
BM 6
698
699
695
692
701
702
703
1 MILE
0
1/2

MAP 13B

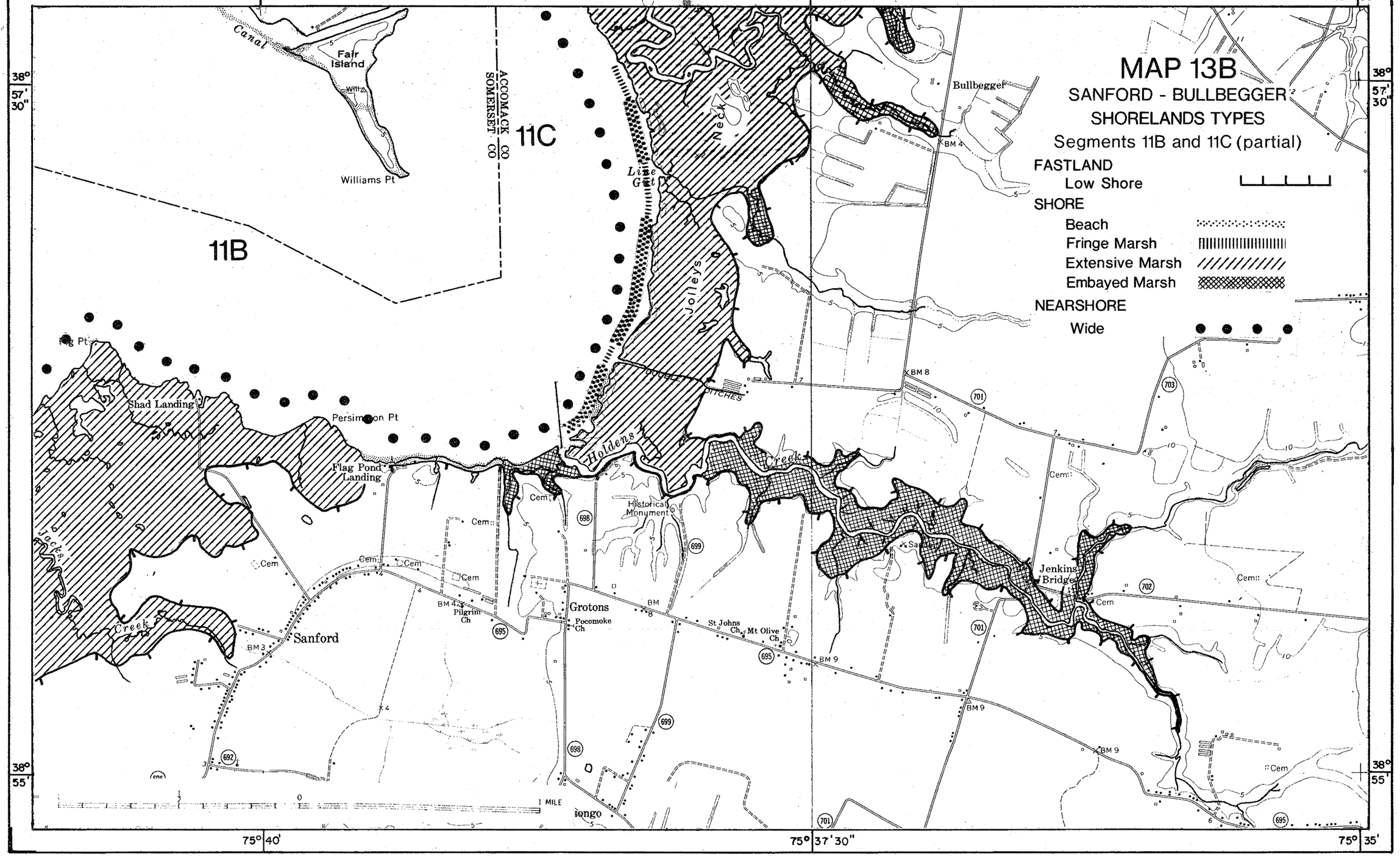
SANFORD - BULLBEGGER
SHORELANDS TYPES

Segments 11B and 11C (partial)

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide



75° 40'
75° 37' 30"
75° 35'
38° 57' 30"
38° 55'

Canal
Fair Island
Wilt
Williams Pt
ACCOMACK CO
SOMERSET CO
11C
11B
Pig Pt
Shad Landing
Persimmon Pt
Flag Pond Landing
Jacks Creek
Sanford
BM 3
1RS
1W
1A
Cem
BM 4
Pilgrim Ch
Grotons
Pocomoke Ch
St Johns Ch
Mt Olive Ch
BM 8
BM 9
Line Gut
Neck
Jolleys
DOUBLE DITCHES
Holdens Creek
Historical Monument
Sandpit
Bullbegger
BM 6
Songo
692
695
698
699
701
703
1 MILE

MAP 13C

SANFORD - BULLBEGGER

FASTLAND USE, OWNERSHIP, EROSION

Segments 11B and 11C (partial)

USE

Agricultural	A
Residential	RS
Unmanaged Wooded	W

OWNERSHIP

Private	1

EROSION

Moderate	ı ı ı ı ı ı
Slight or No Change	No Symbol

75° 37' 30"

75° 35'

MAP 14A

POCOMOKE RIVER

TOPOGRAPHY AND CULTURE

Segment 11C (partial)

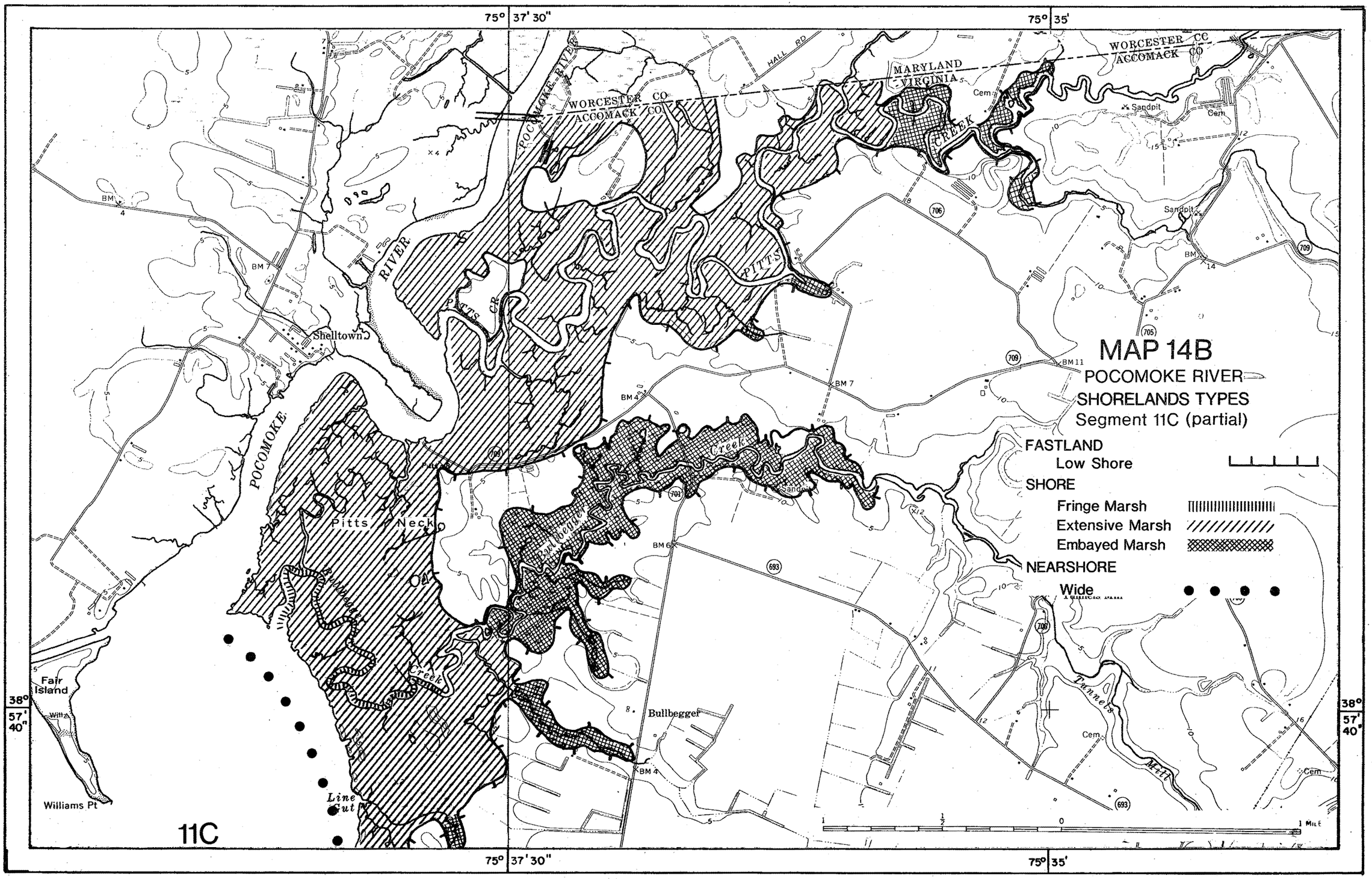
// = Segment Boundary

/ = Subsegment Boundary

38° 57' 40"

11C

1 0 1 MILE


75° 37' 30"
75° 35'
38° 57' 40"
WORCESTER CO
ACCOMACK CO
MARYLAND
VIRGINIA
HALL RD
POCOMOKE RIVER
RIVER
PITTS CR
Shelltown
POCOMOKE
Pitts Neck
Creek
Fair Island
Williams Pt
Line Cut
Bullbegger
Creek
Sandpit
Cem
BM 4
BM 7
BM 11
BM 14
706
709
705
701
693
708
MAP 14B
POCOMOKE RIVER
SHORELANDS TYPES
Segment 11C (partial)
FASTLAND
Low Shore
SHORE
Fringe Marsh
Extensive Marsh
Embayed Marsh
NEARSHORE
Wide
Tunnels
Cem
11C
1 0 1 MILE

MAP 14C

POCOMOKE RIVER

FASTLAND USE, OWNERSHIP, EROSION

Segment 11C (partial)

USE

Agricultural Unmanaged	A
Wooded	W

OWNERSHIP

Private	1

EROSION

Slight or No Change — No Symbol

11C

75° 37' 30"

75° 35'

38° 57' 40"

POCOMOKE RIVER

WORCESTER CO

ACCOMACK CO

MARYLAND

VIRGINIA

HALL RD

PITTS CR

RIVER

CREEK

Shelltown

Pitts Neck

Bullbegger

Creek

Fair Island

Williams Pt

Line Gut

Sandpit

Cem

BM

Pitts

Bullbegger

Annett

Mill

1A

1W

706

709

701

693

705

1 MILE

75° 55'

37° 55'

Cedar Island Creek

CEDAR

TIDAL FLAT

Watkins Pt

SOMERSET CO
ACCOMACK CO

Green Harbor Island

STRAITS

Ellinger Cove

Clump Island

Does Hammock

FOX

Great Fox Island

ISLANDS

Planner Cove

12C

37° 52' 30"

37° 57' 30"

Little Fox Islands

MAP 15A

FOX ISLANDS
TOPOGRAPHY AND CULTURE
Segment 12C

// = Segment Boundary
/ = Subsegment Boundary

0 1 MILE

75° 55'

75° 55'

37° 55'

37° 52' 30"

Cedar Island Creek

CEDAR

TIDAL FLAT

Watkins Pt

SOMERSET CO
ACCOMACK CO

Green Harbor Island

STRAITS

Ellingsen Cove

Clump Island

Does Hammock

FOX ISLANDS

Great Fox Island

Planner Cove

Little Fox Islands

12C

MAP 15B

FOX ISLANDS

SHORELANDS TYPES

Segment 12C

SHORE

Beach

Extensive Marsh

NEARSHORE

Wide

0 1/2 1 MILE

75° 55'

75° 55'

37° 55'

37° 55"

MAP 15C

FOX ISLANDS

FASTLAND USE, OWNERSHIP, EROSION

Segment 12C

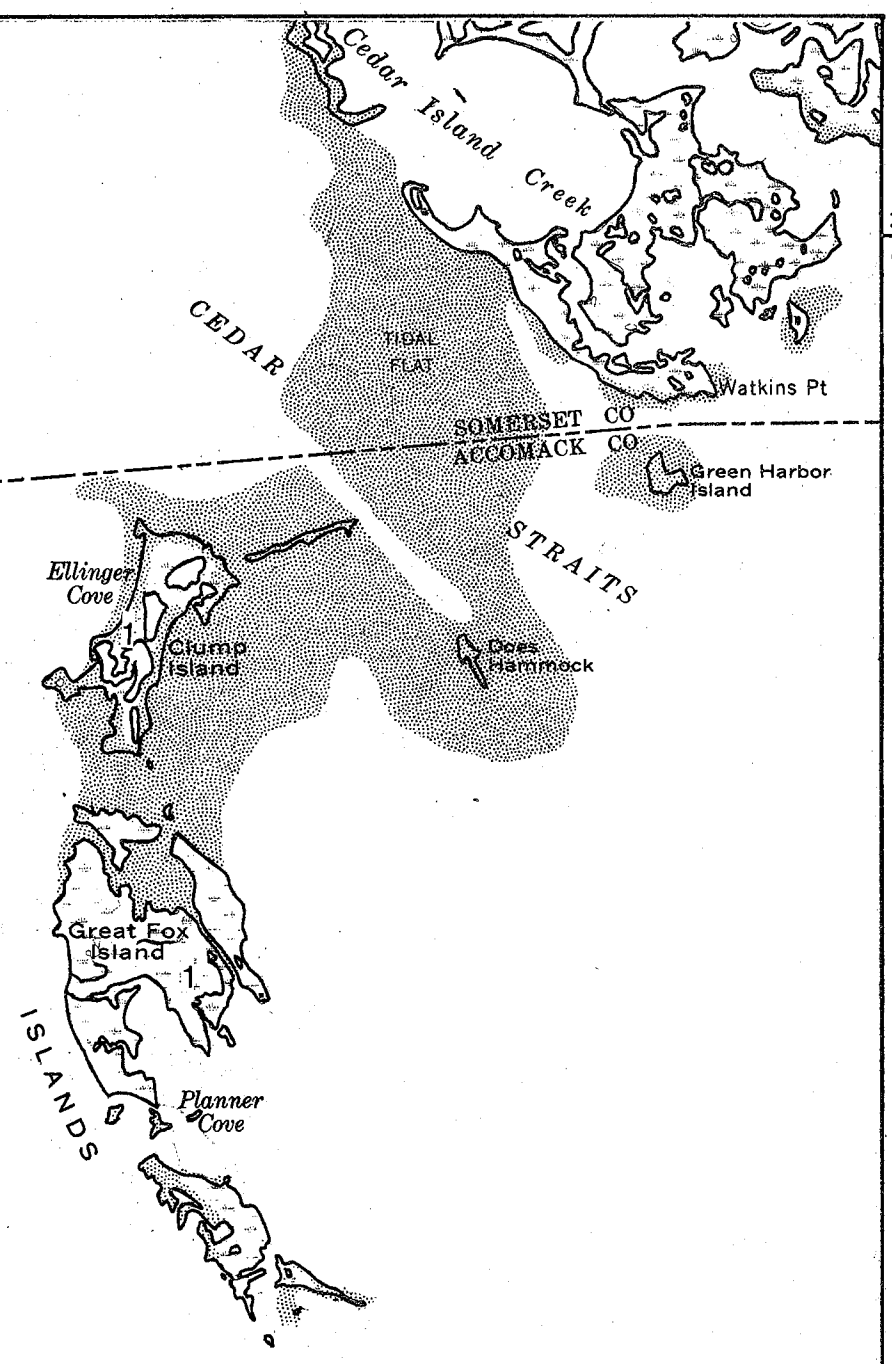
OWNERSHIP

Private 1

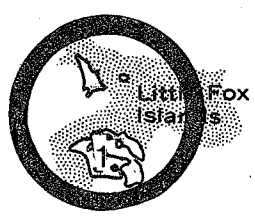
EROSION

Severe

Slight or No Change — No Symbol



12C



37° 52' 30"

37° 57' 30"

1 0 1 MILE

75° 55'

MAP 16A

TANGIER ISLAND

TOPOGRAPHY AND CULTURE

Segment 12A

// = Segment Boundary

/ = Subsegment Boundary

12A

76° 00'

37° 52' 30"

37° 50'

Rum Pt

Tidal Flat

Goose Island

Goose Harbor

Queen Ridge

The Shells

The Flats

Tidal Flat

Tidal Flat

Fishing Gut

Toms Gut

Oyster Creek Gut

West Pt

East Pt

TANGIER ISLAND

Tidal Flat

Tangier North Channel

Mailboat Harbor

East Point Marsh

Cem

Landing Strip

West Ridge

W Ridge Cr

Main Ridge

Tangier

Cem

Canton Cr

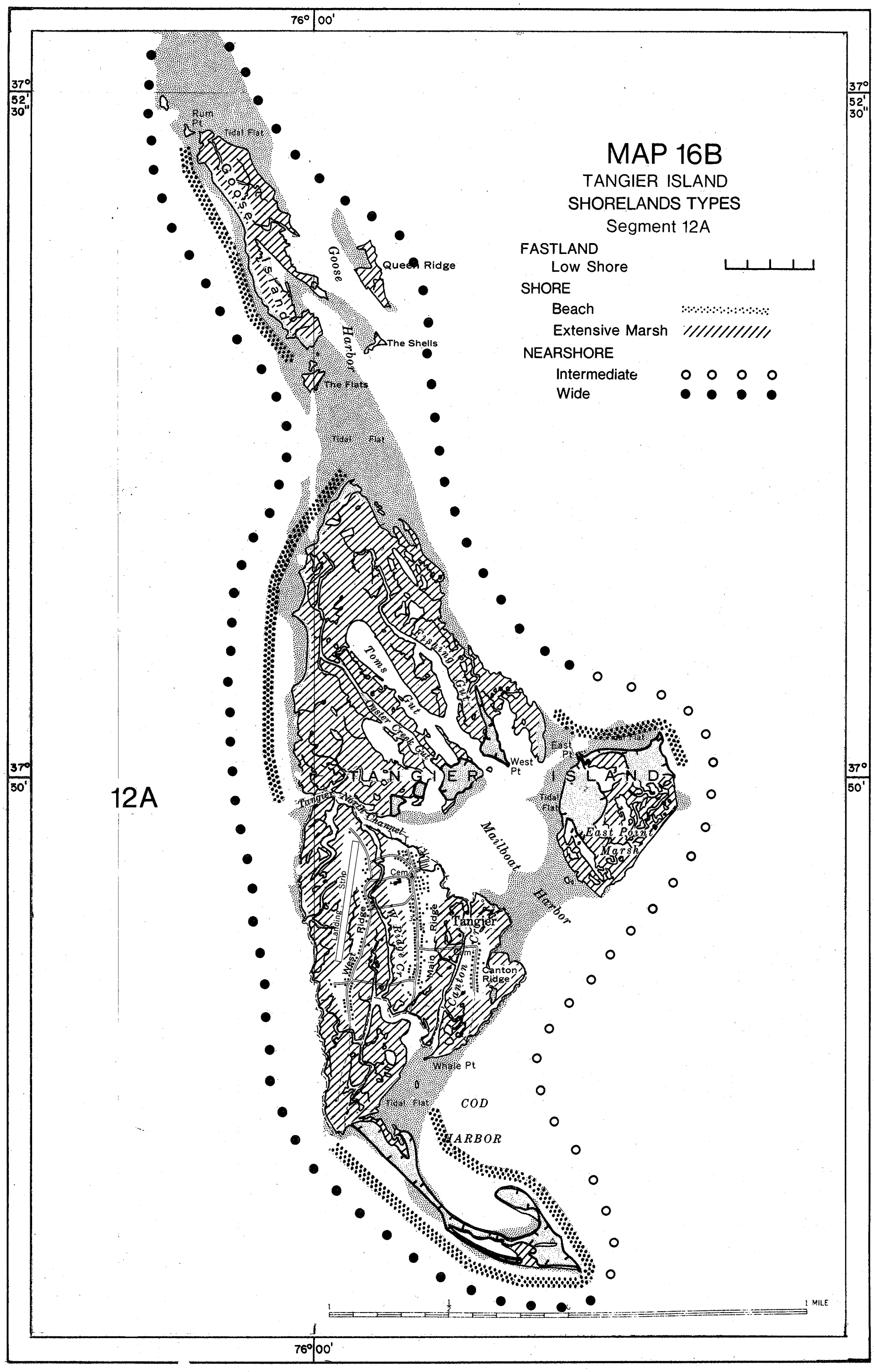
Canton Ridge

Whale Pt

Tidal Flat

COD HARBOR

1 0 1/2 1 MILE


76° 00'
37° 52' 30"
37° 50'
MAP 16B
TANGIER ISLAND
SHORELANDS TYPES
Segment 12A
FASTLAND
Low Shore
SHORE
Beach
Extensive Marsh
NEARSHORE
Intermediate
Wide
12A
Rum Pt.
Tidal Flat
Goose Island
Goose Harbor
Queen Ridge
The Shells
The Flats
Tidal Flat
Toms Point
Fishing Gut
Outer Creek Gut
TANGIER ISLAND
West Pt
East Pt
Tidal Flat
Tangier North Channel
Mailboat Harbor
East Point Marsh
Cem
West Ridge
Landing Strip
Main Ridge
Tangier
Canton Ridge
Whale Pt
Tidal Flat
COD HARBOR
1 MILE

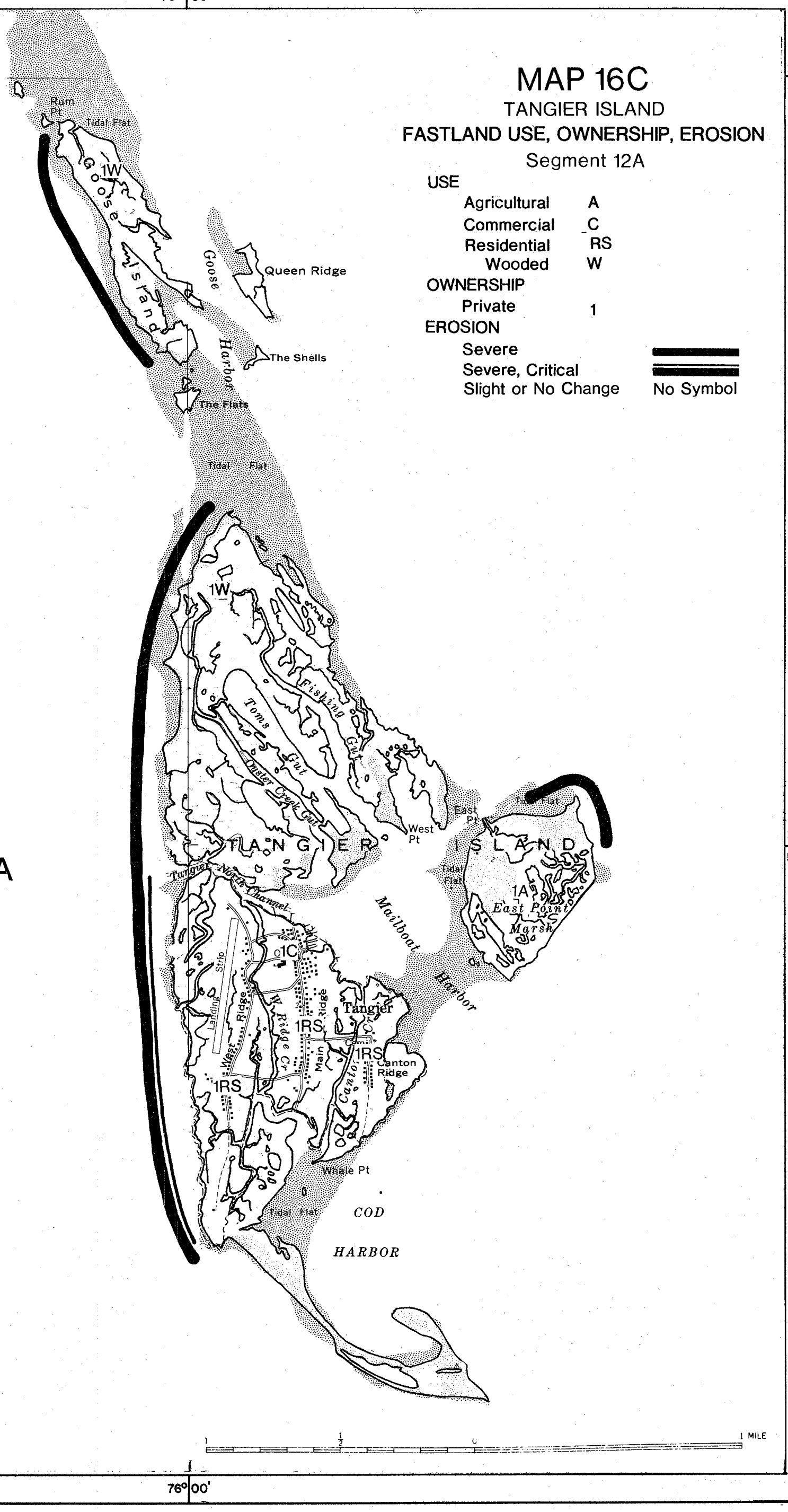
MAP 16C

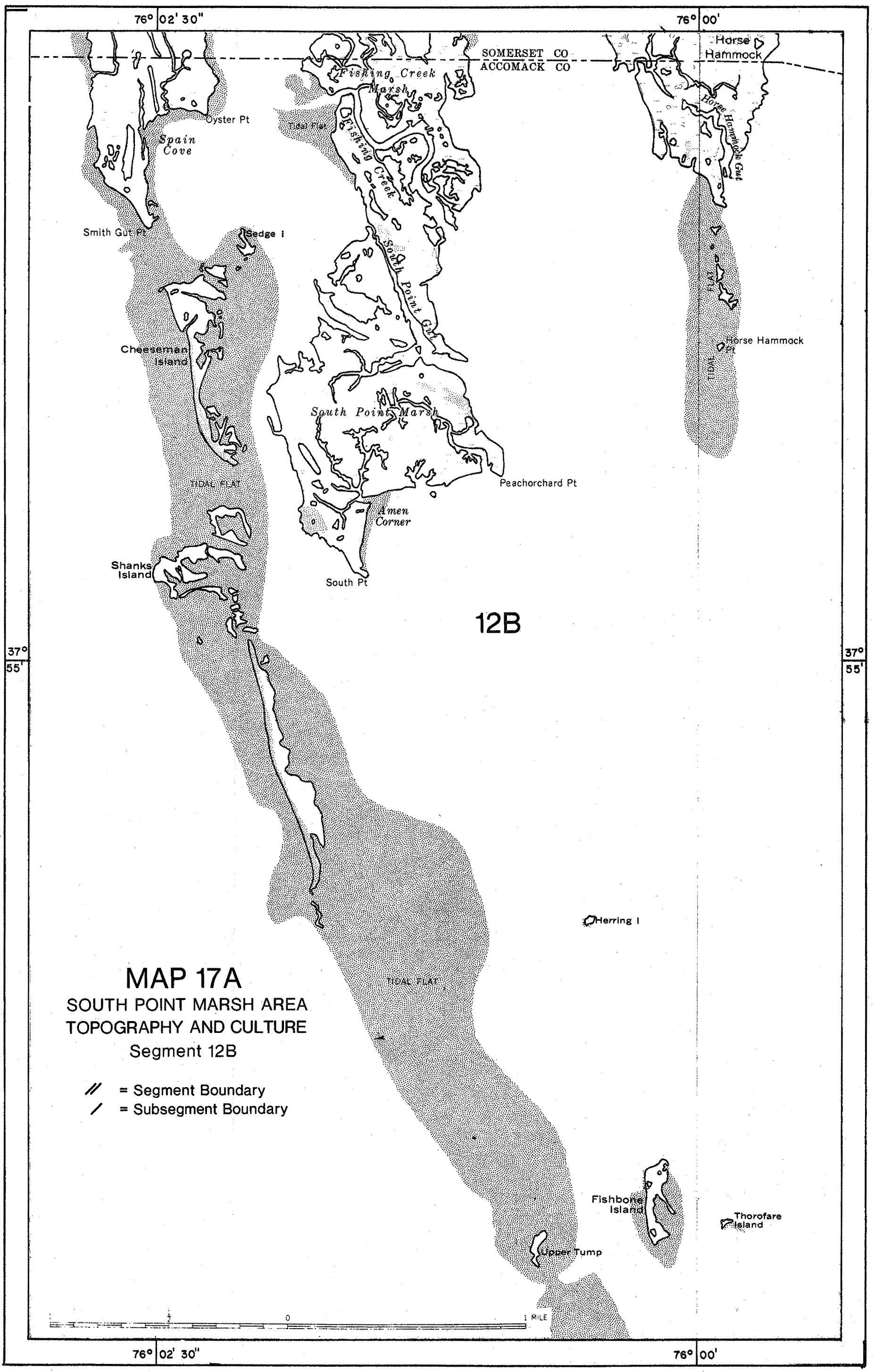
TANGIER ISLAND

FASTLAND USE, OWNERSHIP, EROSION

Segment 12A

USE	
Agricultural	A
Commercial	C
Residential	RS
Wooded	W
OWNERSHIP	
Private	1
EROSION	
Severe	
Severe, Critical	
Slight or No Change	No Symbol





MAP 17A

SOUTH POINT MARSH AREA TOPOGRAPHY AND CULTURE

Segment 12B

// = Segment Boundary

/ = Subsegment Boundary

76° 02' 30"

76° 00'

SOMERSET CO
ACCOMACK CO

Horse Hammock

Fishing Creek Marsh

Oyster Pt

Tidal Flat

Spain Cove

Fishing Creek

Horse Hammock Gut

Smith Gut Pt

Sedge I

South Point Gut

Cheeseman Island

TIDAL FLAT

Horse Hammock Pt

South Point Marsh

Peachorchard Pt

Amen Corner

Shanks Island

South Pt

12B

37° 55'

MAP 17B

SOUTH POINT MARSH AREA

SHORELANDS TYPES

Segment 12B

SHORE

Beach

Extensive Marsh

NEARSHORE

Wide

Herring I

Fishbone Island

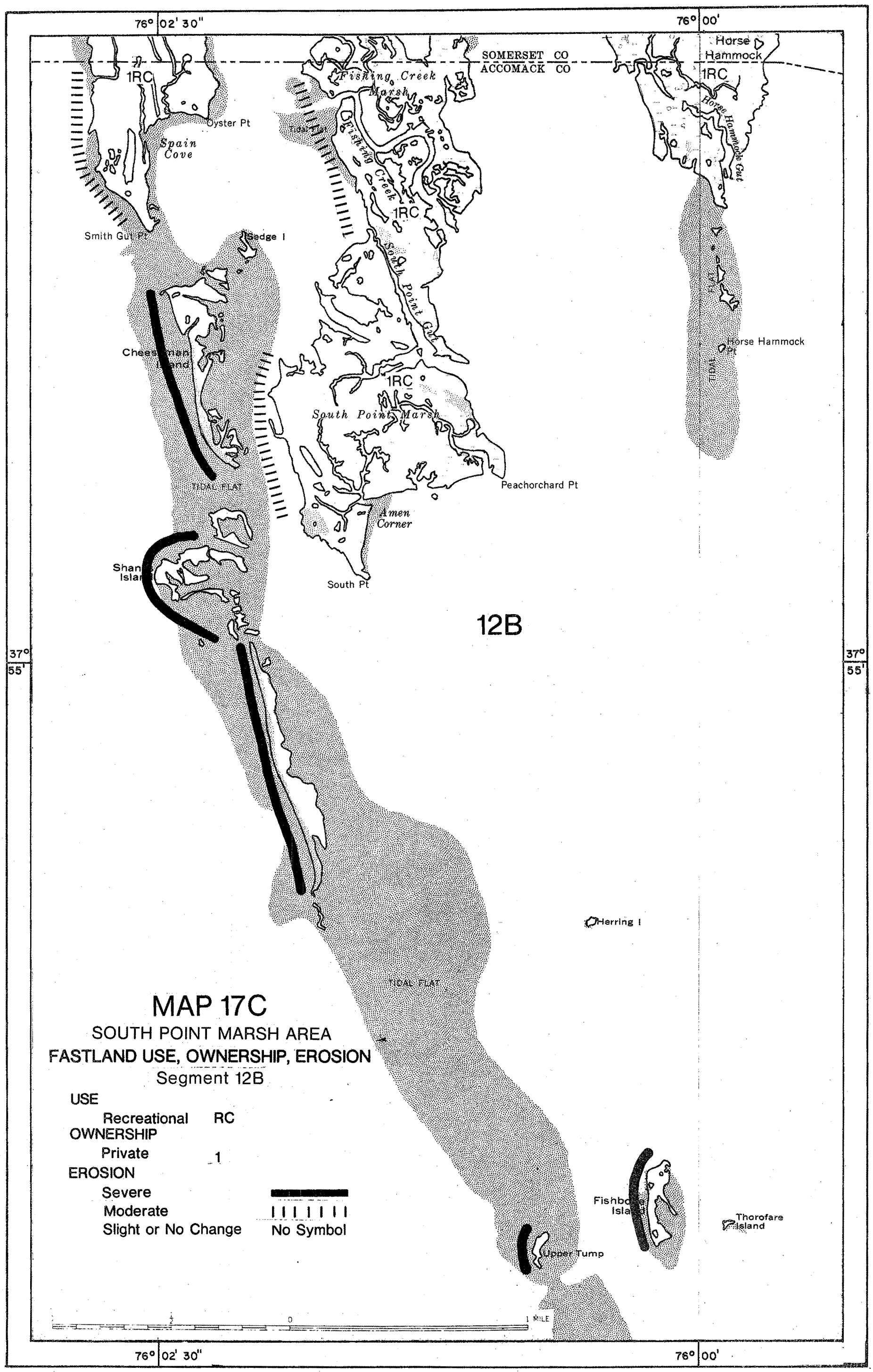
Thorofare Island

Upper Tump

0 1 MILE

76° 02' 30"

76° 00'



MAP 17C

SOUTH POINT MARSH AREA

FASTLAND USE, OWNERSHIP, EROSION

Segment 12B

USE

Recreational RC

OWNERSHIP

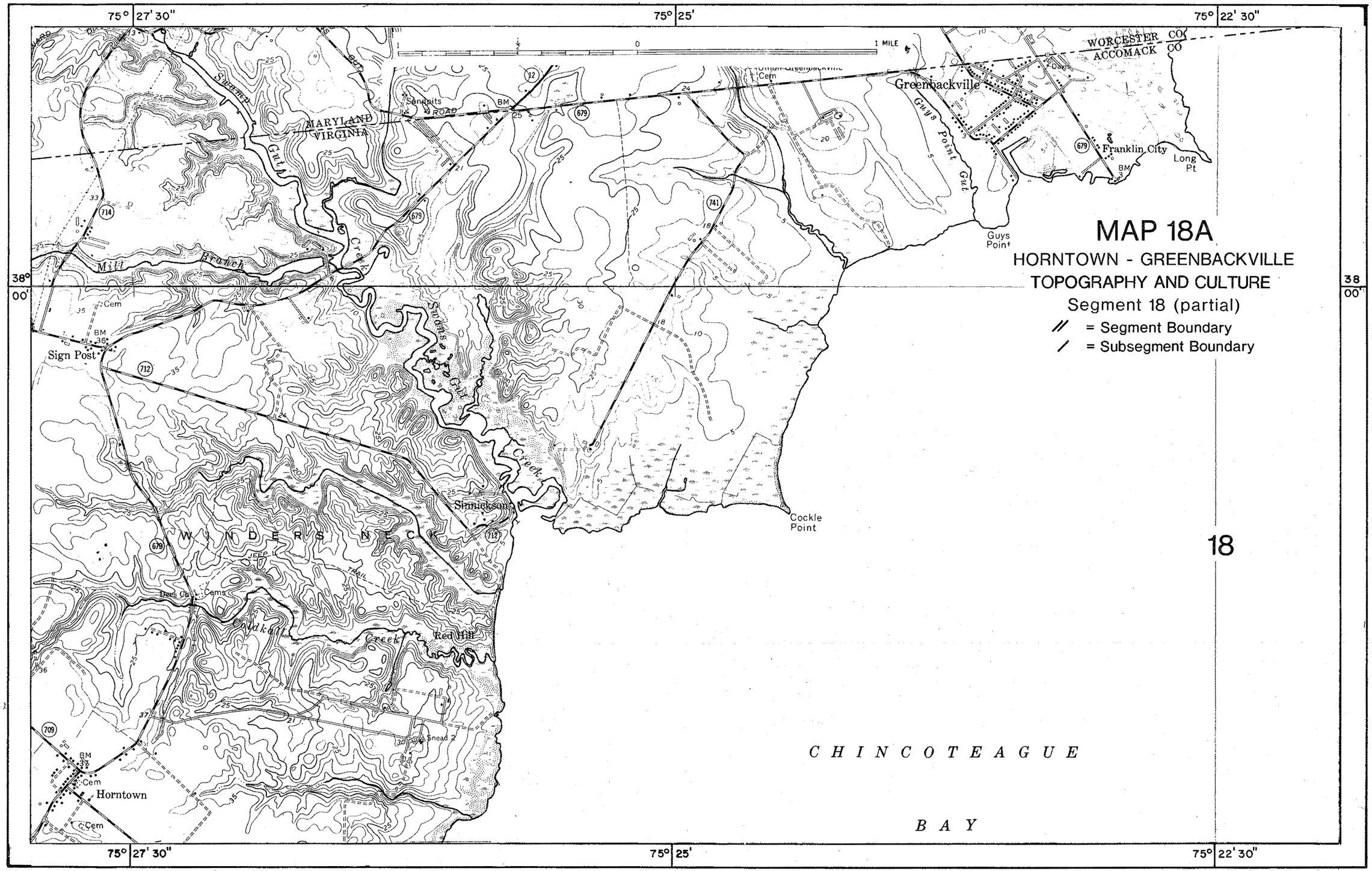
Private 1

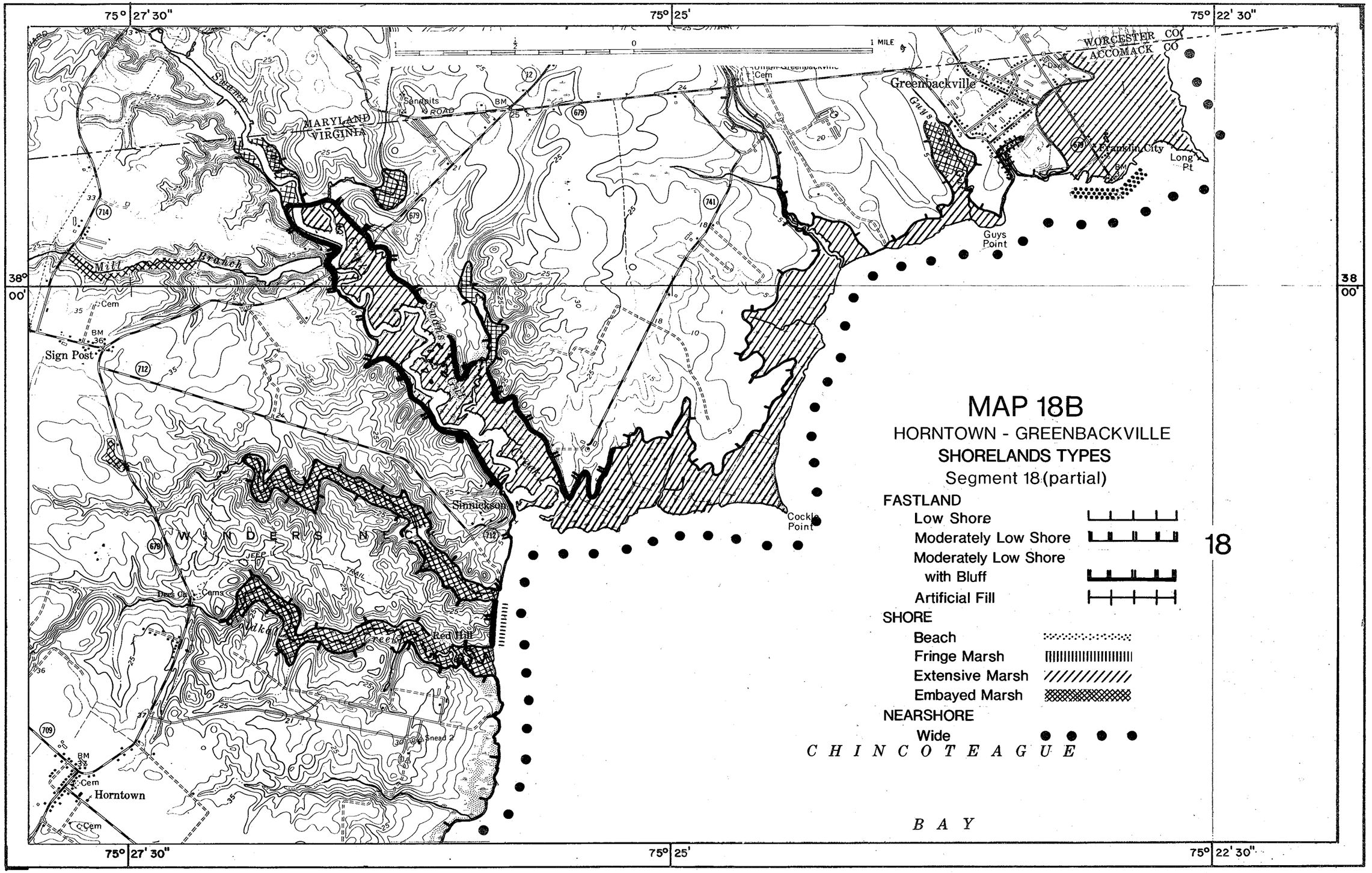
EROSION

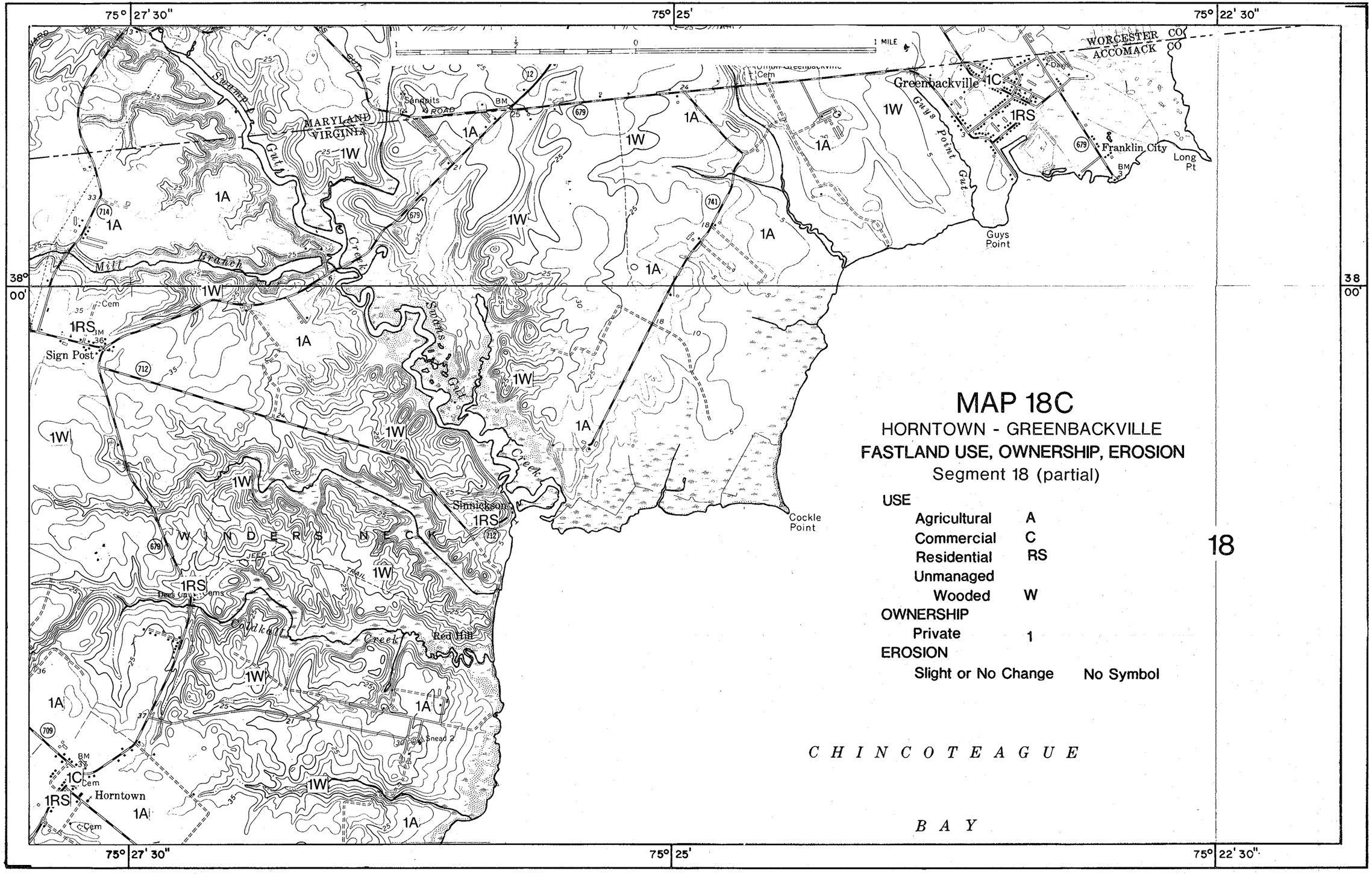
Severe

Moderate

Slight or No Change No Symbol


75° 27' 30"
75° 25'
75° 22' 30"
38° 00'
1 MILE
WORCESTER CO
ACCOMACK CO
MARYLAND
VIRGINIA
Swanson Gut
Mill Branch
Creek
Sanpits
ROAD
BM
Cem
Greenbackville
Guys Point Gut
Guys Point
Franklin City
Long Pt
Sign Post
Swansboro Gut
Creek
Sinnickson
Cockle Point
W I N D E R S N E C K
JEEP TRAIL
Deer Ck Cems
Oakhall Creek
Red Hill
Old Snead 2
Horntown
Cem
CHINCOTEAGUE
BAY
MAP 18A
HORNTOWN - GREENBACKVILLE
TOPOGRAPHY AND CULTURE
Segment 18 (partial)
// = Segment Boundary
/ = Subsegment Boundary
18


75° 27' 30"
75° 25'
75° 22' 30"
38° 00'
1 MILE
MARYLAND
VIRGINIA
WORCESTER CO
ACCOMACK CO
Greenbackville
Franklin City
Long Pt
Guys Point
Sandpits
Mill Branch
Sign Post
Cem
BM
Simmicksons
Cockle Point
Red Hill
Snead
Horntown
Deep Cr
Cems
JEEP TRAIL
WINDERSNEC
MAP 18B
HORNTOWN - GREENBACKVILLE
SHORELANDS TYPES
Segment 18 (partial)
FASTLAND
Low Shore
Moderately Low Shore
Moderately Low Shore with Bluff
Artificial Fill
SHORE
Beach
Fringe Marsh
Extensive Marsh
Embayed Marsh
NEARSHORE
Wide
CHINCOTEAGUE
BAY
18



MAP 18C

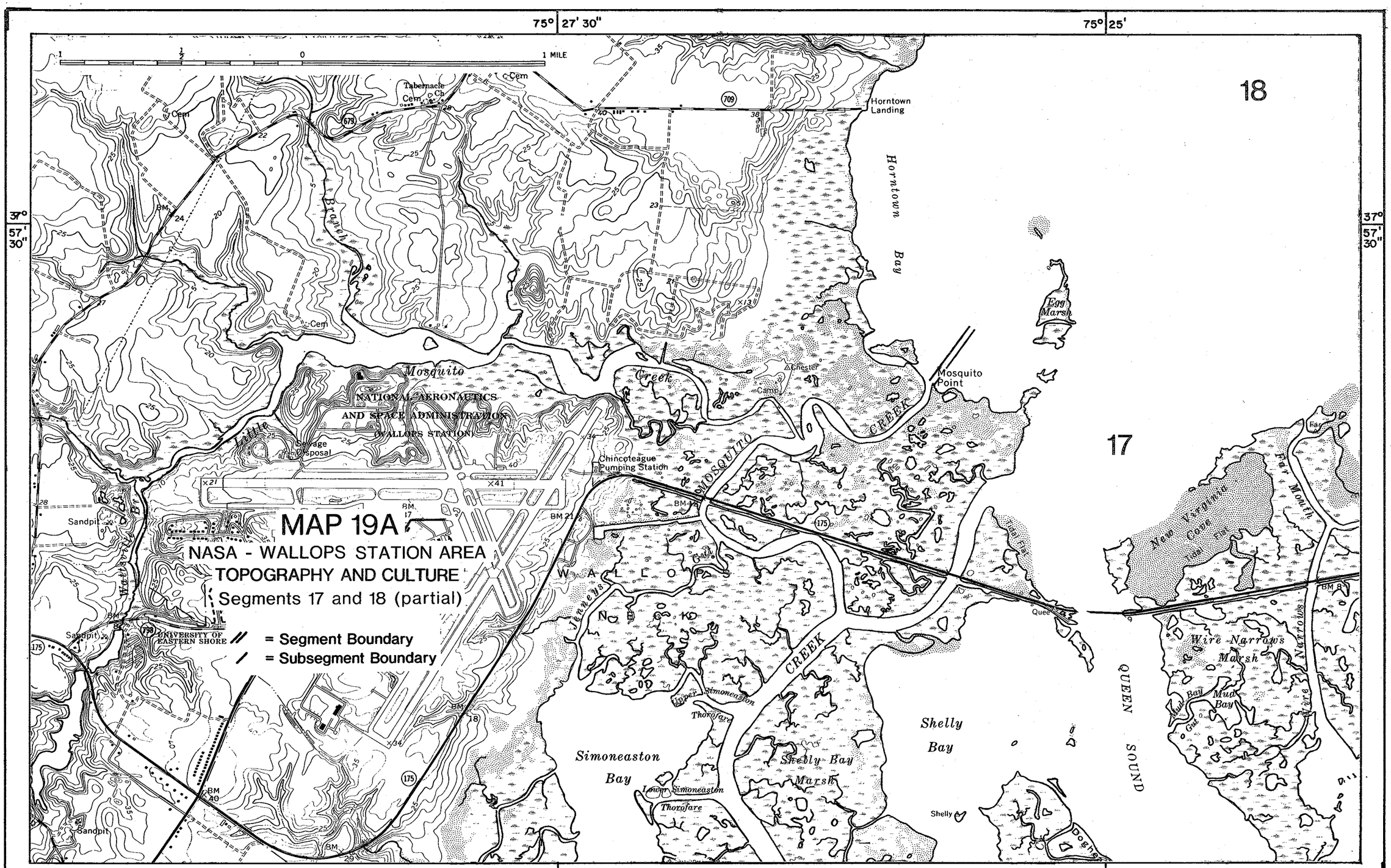
HORNTOWN - GREENBACKVILLE

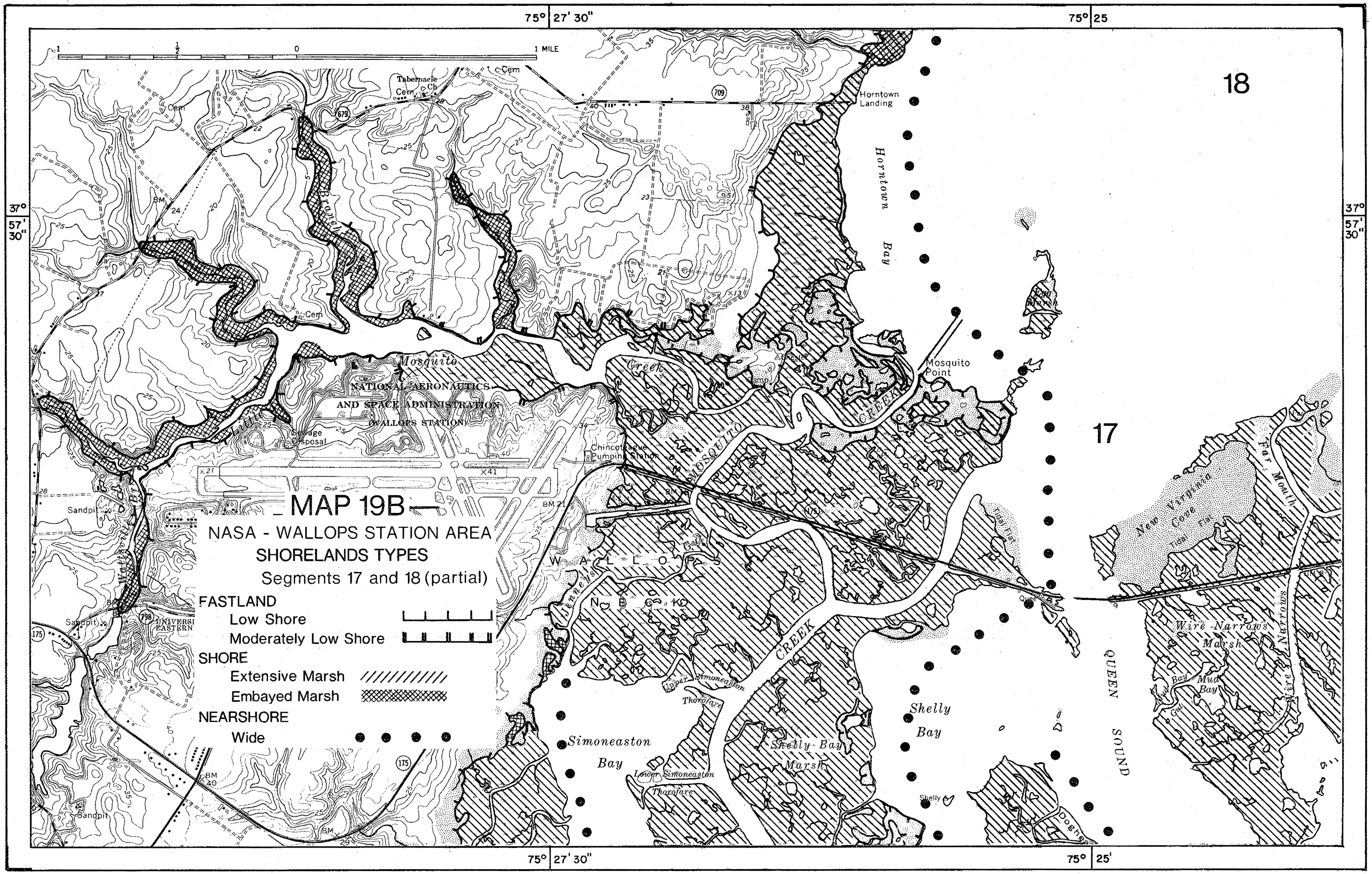
FASTLAND USE, OWNERSHIP, EROSION

Segment 18 (partial)

USE	
Agricultural	A
Commercial	C
Residential	RS
Unmanaged Wooded	W
OWNERSHIP	
Private	1
EROSION	
Slight or No Change	No Symbol

18


75° 27' 30"
75° 25'
37° 57' 30"
1 MILE
18
17
Tabernacle Cem.
Ch
Cem
679
709
Horntown Landing
Hornton Bay
Egg Marsh
Branch
BM
Mosquito Creek
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WALLOPS STATION
Little
Sewage Disposal
Chincoteague Pumping Station
Mosquito Point
Chester Camp
CREEK
MAP 19A
NASA - WALLOPS STATION AREA
TOPOGRAPHY AND CULTURE
Segments 17 and 18 (partial)
= Segment Boundary
= Subsegment Boundary
UNIVERSITY OF EASTERN SHORE
Sandpit
Waterbury
Jamneys Neck
WALLOPS
Bay
CREEK
Upper Simoneaston
Thorofare
Simoneaston Bay
Lower Simoneaston
Shelly Bay Marsh
Shelly Bay
Shelly
QUEEN SOUND
New Virginia Cove
Fish
Wire Narrows Marsh
Mud Bay
Gut
Fox Mouth
Wire Narrows
Tidal Pk
Quee
Doe
175
BM 40
BM 21
BM 17
BM 18
BM 29



MAP 19B
NASA - WALLOPS STATION AREA
SHORELANDS TYPES
Segments 17 and 18 (partial)
FASTLAND
Low Shore
Moderately Low Shore
SHORE
Extensive Marsh
Embayed Marsh
NEARSHORE
Wide
1
½
0
1 MILE
75° 27' 30"
75° 25
75° 25'
37° 57' 30"
18
17
Horntown Landing
Horntown Bay
Mosquito Point
Mosquito Creek
MOSQUITO CREEK
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (WALLOPS STATION)
Sewage Disposal
Chincoteague Pumping Station
WALLOPS NECK
Tabernacle Ch
Cem
Sandpit
Simoneaston Bay
Upper Simoneaston Thorofare
Lower Simoneaston Thorofare
Shelly Bay
Shelly Bay Marsh
QUEEN SOUND
New Virginia Cove
Tidal Flat
Far Mouth
Wire Narrows
Wire Narrows Marsh
Mud Bay

MAP 19C

NASA - WALLOPS STATION AREA

FASTLAND USE, OWNERSHIP, EROSION

Segments 17 and 18 (partial)

USE

Agricultural	A
Commercial	C
Government	G
Residential	RS
Unmanaged	
Unwooded	U
Wooded	W

OWNERSHIP

Private	1
Federal	2

EROSION

Slight or No Change — No Symbol

17

75° 27' 30" — 75° 25' — 37° 57' 30"

MAP 20A

CHINCOTEAGUE INLET AREA
TOPOGRAPHY AND CULTURE

Segment 17 (partial)

// = Segment Boundary

/ = Subsegment Boundary

75° 30' | 75° 27' 30" | 75° 25'

37° 55'

37° 52' 30"

Watts Bay

Powells Bay

BOGUES BAY

Atlantic

Wishart

Wishart Point

Yacht Club

Sandpit

Sandpits

Cedar Creek

Little Simoneaston

Big Simoneaston Cr

Lower Simoneaston

Thorofare

Simoneaston

Kendall

Narrows

COCKLE

Willis Creek

Willis Marsh

Squires Dogneck Flat

Shelly

Shoaling Point

Tidal Flat

Willis Point

Little Old Root Narrows

Walker Marsh

Walker Point

Old Root Narrows

Ballast Tump

Ballast Narrows

The Four Mouths

Isle Hole

Island Hole Narrows

Taylors Narrows

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WALLOPS ISLAND

Sloop

Gut

Cow Gut

Cow Gut Flat

Lookout Tower

WALLOPS ISLAND

Gunboat Point

Hammock Point

Chincoteague Point

Chin 2

The Canal

CHINCOTEAGUE INLET

17

BM 41

BM 29

BM 10

BM 9

Cem

679

702

695

781

MAP 20B

CHINCOTEAGUE INLET AREA
SHORELANDS TYPES
Segment 17 (partial)

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide

75° 30' | 75° 27' 30" | 75° 25'

37° 55'

37° 52' 30"

Watts Bay
Poulls Bay
BOGUES BAY
COCKLE
Little Simoneaston
Big Simoneaston
Simoneaston
Lower Simoneaston
Thorofare
Kedges Narrows
Little Old Road Narrows
Old Root Narrows
Walker Marsh
Willis Marsh
Squirrel Creek
Doe Bay
Flat
Shoaling Point
Willis Point
Tidal Flat
Hammock Point
Chincoteague Point
The Canal
Gunboat Point
Walker Point
Ballast Tump
Ballast Narrows
The Four Mouths
Taylors Narrows
Island Hole Narrows
Sloops Gut
Gut
Cow Lighted Buoy
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WALLOPS ISLAND
Lookout Tower
CHINCOTEAGUE INLET
Atlantic
Wishart
Wishart Point
Yacht Club
Sandpit
Sandbits
Cedar Creek
Cem
BM
BM 41
BM 10
BM 9
BM 6
702
695
741
17

MAP 20C

CHINCOTEAGUE INLET AREA

FASTLAND USE, OWNERSHIP, EROSION

Segment 17 (partial)

USE		
	Agricultural	A
	Government	G
	Residential	RS
	Unmanaged Wooded	W
OWNERSHIP		
	Private	1
	Federal	2
EROSION		
	Slight or No Change	No Symbol

75° 30' | 75° 27' 30" | 75° 25'

37° 55' | 37° 52' 30"

Watts Bay

Powells Bay

BOGUES BAY

CHINCOTEAGUE INLET

WALLOPS ISLAND

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (WALLOPS ISLAND)

17

MAP 21A

WALLOPS ISLAND
TOPOGRAPHY AND CULTURE
Segment 17 (partial)

// = Segment Boundary

/ = Subsegment Boundary

17

75° 32' 30" | 75° 30' | 75° 27' 30"

37° 50'

Assawoman | Cem | BM 38 | Sandpits | Sandpit | 692 | 803 | BM 32 | Radio Tower | Neck | Tidal Flat | BOGUES BAY | Island Hope Narrows | Water Tank | BM 42 | Assawoman Creek | Arbuckle Creek | Hog Creek | Oyster Bay | Womans Bay | Hog Neck | Sandpit | 689 | Barnes | Mud Narrows | Assawoman Creek | Hammock Creek | NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (WALLOPS ISLAND) | Old Creek | Launch Pad | Beach | Weather Station | WT | Radio Tower | Radio Facility | Launch Pads | Lookout Tower | Radio Towers | Wallops Island | Assawoman

1 M.

75° 32' 30" | 75° 30' | 75° 27' 30"

37° 50'

MAP 21B

WALLOPS ISLAND

SHORELANDS TYPES

Segment 17 (partial)

FASTLAND
- Low Shore

SHORE
- Beach
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Intermediate
- Wide

17

BOGUES BAY

Assawoman

Womans Bay

Oyster Bay

Hog Neck

Sandpits

Sandpit

Tidal Flat

Water Tank

Radio Tower

Launch Pad

Weather Station

Radio Facility

Lookout Tower

Cem

BM

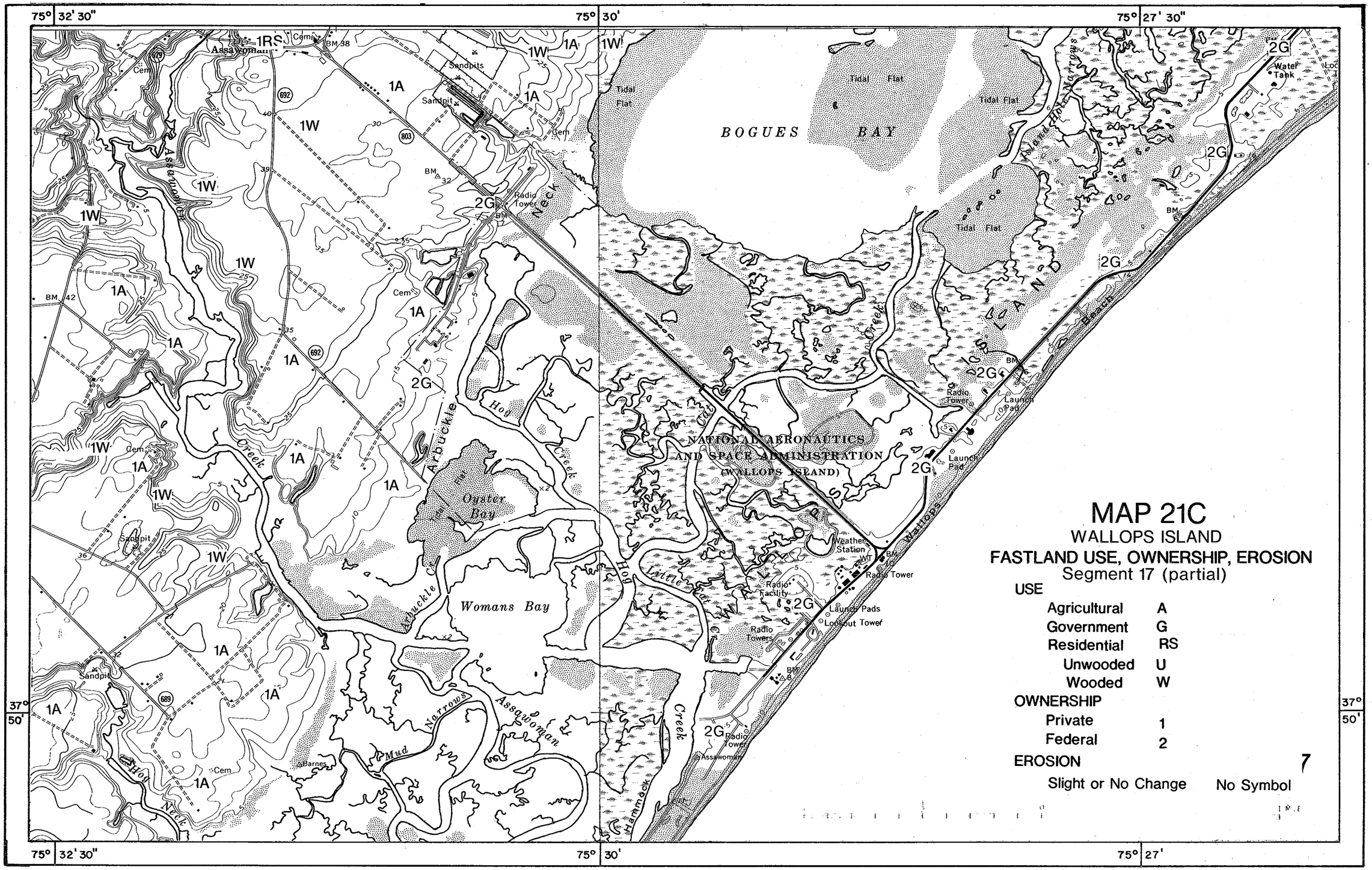
Creek

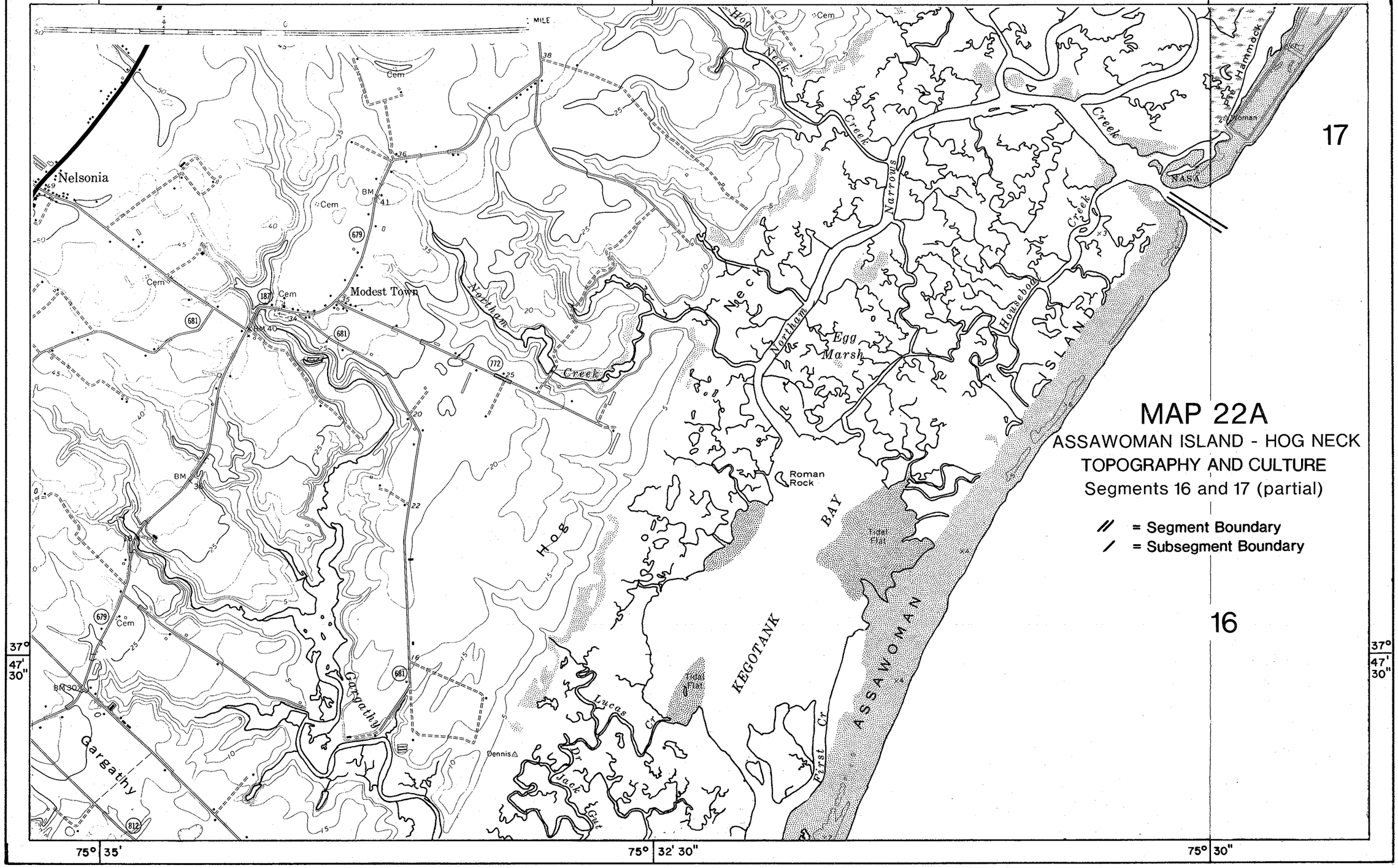
Narrows

Beach

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (WALLOPS ISLAND)

1 0 1 MILE


75° 32' 30"
75° 30'
75° 27' 30"
37° 50'
Assawoman
Cem
BM 38
Sandpits
Sandpit
Tidal Flat
BOGUES BAY
Water Tank
Radio Tower
Arbuckle Creek
Oyster Bay
Womans Bay
Hog Neck
Mud Narrows
Barnes
Cem
Island Hole Narrows
Beach
Launch Pad
Weather Station
Radio Facility
Launch Pads
Lookout Tower
Radio Towers
Hammock Creek
Little Oyster Bay
1A
1W
1RS
2G
1C
692
803
689
MAP 21C
WALLOPS ISLAND
FASTLAND USE, OWNERSHIP, EROSION
Segment 17 (partial)
USE
Agricultural A
Government G
Residential RS
Unwooded U
Wooded W
OWNERSHIP
Private 1
Federal 2
EROSION 7
Slight or No Change No Symbol
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (WALLOPS ISLAND)


75° 35'
75° 32' 30"
75° 30"
37° 47' 30"
MILE
Nelsonia
Modest Town
Cem
BM
679
681
772
187
Northam
Creek
Hog Neck
Narrows
Egg Marsh
Neck
Roman Rock
BAY
Tidal Flat
KEGOTANK
ASSAWOMAN ISLAND
Hog
Lycas Cr
Jack Gut
First Cr
Gargathy
Dennis
812
17
16
MAP 22A
ASSAWOMAN ISLAND - HOG NECK
TOPOGRAPHY AND CULTURE
Segments 16 and 17 (partial)
// = Segment Boundary
/ = Subsegment Boundary

MAP 22B

ASSAWOMAN ISLAND - HOG NECK

SHORELANDS TYPES

Segments 16 and 17 (partial)

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Intermediate
- Wide

75° 35' | 75° 32' 30" | 75° 30'

37° 47' 30"

MILE

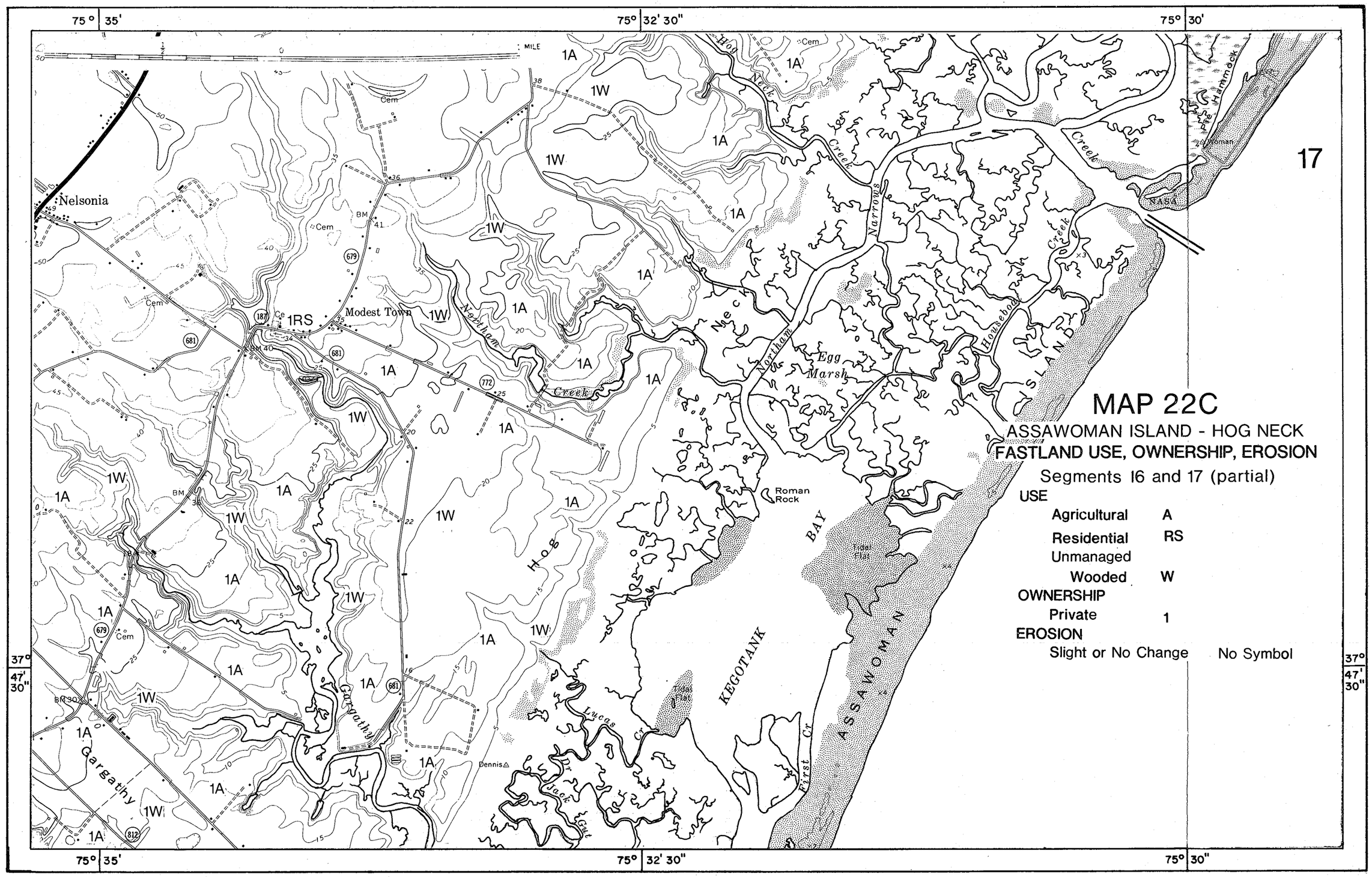
Cem
Creek
Narrows
Northam
Neck
Egg Marsh
Roman Rock
BAY
Tidal Flat
ASSAWOMAN
ISLAND
Hog
KEGOTANK
Gargathy
Cem
BM
Tidal Flat
Lyncas Cr
Jack Gut
First Cr
Dennis
Hankins
Creek
Houseboat
Creek
Tidal Flat

17

16

37° 47' 30"

75° 35' | 75° 32' 30" | 75° 30'


75° 35'
75° 32' 30"
75° 30'
37° 47' 30"
17
Nelsonia
Modest Town
Cem
BM
679
681
772
187
812
1RS
1W
1A
Northam Creek
Hog Neck Creek
Narrows
Egg Marsh
Northam
Creek
Houseboat
Creek
Hammock
Pt Assawoman
NASA
ISLAND
Roman Rock
BAY
KEGOTANK
ASSAWOMAN
Tidal Flat
Lucas Cr
First Cr
Hog
Creek
Gargathy
Dennis
Inlet
Gut
MAP 22C
ASSAWOMAN ISLAND - HOG NECK
FASTLAND USE, OWNERSHIP, EROSION
Segments 16 and 17 (partial)
USE
Agricultural A
Residential RS
Unmanaged
Wooded W
OWNERSHIP
Private 1
EROSION
Slight or No Change No Symbol

MAP 23A

METOMKIN ISLAND
TOPOGRAPHY AND CULTURE

Segment 16 (partial)

= Segment Boundary

= Subsegment Boundary

75° 35'

75° 32' 30"

37° 45'

16

Gargathy Bay

Gargathy Inlet

Gargathy Beach

ISLAND

METOMKIN

Neck Creek

Mutton Hunk Br

Whites Neck

Boundary Creek

Cutoff Cr

Shipping Passage

Trout Cr

Wire Passage

Deep Creek

Crippen Creek

Poplar Cr

North Parker Fork

PARKER NECK

Public Boat Landing

Boat Landing

Tidal Flat

Tidal Flat

Gargathy 3A

Metomkin Ch

Accomack Wayside

Centerville

Zion Ch

Grave

BM 29

BM 22

BM 15

BM 4

75° 35'

75° 32' 30"

1 0 1 MILE

MAP 23B

METOMKIN ISLAND

SHORELANDS TYPES

Segment 16 (partial)

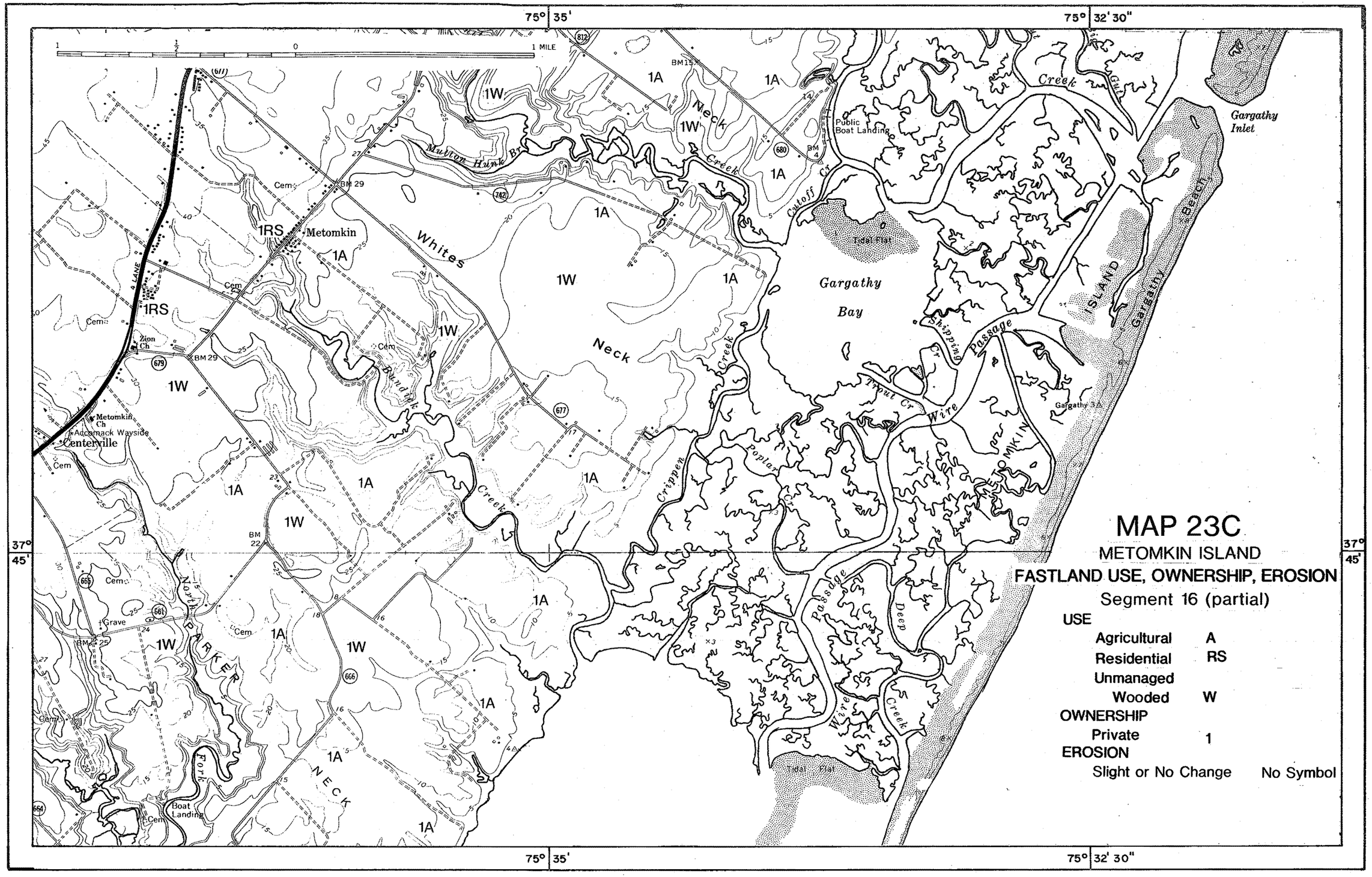
FASTLAND
- Low Shore

SHORE
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh
- Beach

NEARSHORE
- Intermediate
- Wide

16

37° 45'


75° 35'
75° 32' 30"
37° 45'
1 MILE
Mutton Hunk Br
Whites Neck Creek
Cutoff Cr
Public Boat Landing
Gargathy Inlet
Gargathy Beach
ISLAND
Gargathy Bay
Shipping Passage
Trout Cr
Wire Cr
Crippen Creek
Poplar Cr
Deep Creek
Bundicks Creek
Metomkin Ch
Accomack Wayside
Centerville
Zion Ch
Metomkin
Gargathy 3
Boat Landing
North Fork
Tidal Flat
1RS
1W
1A
MAP 23C
METOMKIN ISLAND
FASTLAND USE, OWNERSHIP, EROSION
Segment 16 (partial)
USE
Agricultural A
Residential RS
Unmanaged
Wooded W
OWNERSHIP
Private 1
EROSION
Slight or No Change No Symbol

MAP 24A

METOMKIN BAY

TOPOGRAPHY AND CULTURE

Segments 16 and 15 (partial)

// = Segment Boundary

/ = Subsegment Boundary

75° 37' 30"

75° 35'

37° 42' 30"

16

15

BAY

METOMKIN

Parker Creek

Sandpit

Boat Landing

Cem

Tidal Flat

Battle Pt

Walston Creek

YLYSNECK

JOYNES NECK

Edge Hill Cem

Folly Creek

Folly Creek Landing

BM 20

BM X 14

BM Joynes

Warwick Channel

Running Channel

Round Rock Channel

Tern

Light

Henrys Pt

METOMKIN ISLAND

TIDAL FLAT

1 MILE

MAP 24B

METOMKIN BAY

SHORELANDS TYPES

Segments 16 and 15 (partial)

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Intermediate

75° 37' 30" | 75° 35'

37° 42' 30"

16

15

Parker Creek

Sandpit

Cem

Sandpits

YLYS NECK

JOYNES NECK

Folly Creek

Walsh Creek

Tidal Flat

METOMKIN BAY

Warwick Channel

Running Channel

Round Rock Channel

METOMKIN ISLANDS

TIDAL FLAT

Henrys

BM 20

BM 14

1 MILE

MAP 24C

METOMKIN BAY

FASTLAND USE, OWNERSHIP, EROSION

Segments 16 and 15 (partial)

USE

Agricultural Unmanaged	A
Wooded	W

OWNERSHIP

Private	1

EROSION

Slight or No Change	No Symbol

75° 37' 30" — 75° 35' — 37° 42' 30"

16

15

1A 1W

AYLYSNECK — JOYNES NECK

Parker Creek — Folly Creek — Walston Creek

Edge Hill Cem — Sandpits — Cem — Boat Landing — Tidal Flat — Battle Pt — Light — Henrys Pt

TIDAL FLAT

METOMKIN BAY — METOMKIN ISLAND

Warwick Channel — Running Channel — Round Rock Channel

Folly Creek Landing — Joynes — Tern

BM 20 — BM 26 — BM X 14 — BM 3

1 MILE

75° 40'
75° 37' 30"
75° 35'
37° 40'

1 0 1 MILE

Ch

Custis Creek

CUSTIS NECK

Radio Tower

Henrys Pt

Light

Knock Knees Gut

Flounder Pt

Tidal Flat

Creek

Cross Creek

Longboat

Thrasher Gut

Little Thrasher Gut

Cedar Pt

Cedar Island

Thrasher

Big Sneads Beach

Channel

Straight Creek

Point of Rocks

Tidal Flat

Cross Gut

Custis 4

Cedar Island Bay

Tidal Flat

Teagles Ditch

Southwest Gut

Little Channel

Cedar Island

Burtons Shore

BM 23

BM 16

Cem

ROAD

SEASIDE

605

647

646

648

MAP 25A

NORTH CEDAR ISLAND - CUSTIS NECK

TOPOGRAPHY AND CULTURE

Segment 15 (partial)

// = Segment Boundary

/ = Subsegment Boundary

15

MAP 25B

NORTH CEDAR ISLAND - CUSTIS NECK

SHORELANDS TYPES

Segment 15 (partial)

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Intermediate
- Wide

75° 40'
75° 37' 30"
75° 35'
37° 40'

1 MILE

Custis Neck
Radio Tower
Flounder Pt
Henrys Pt
Knock Knees Gut
Creek
Longboat
Thrasher Gut
Little Thrasher Gut
Big
Cedars
Cedar Pt
Cross Gut
Point of Rocks
Tidal Flat
Cedar Island Bay
Sneads Beach
Channel
Straight Creek
Southwest Gut
Little Channel
Island Beach
Cedar Island
Custis 4
Teagles Ditch
Buttons Shore
Cem
SEASIDE
605
647
646
648

15

MAP 25C

NORTH CEDAR ISLAND - CUSTIS NECK

FASTLAND USE, OWNERSHIP, EROSION

Segment 15 (partial)

USE

Agricultural	A
Residential	RS
Unmanaged Wooded	W

OWNERSHIP

Private	1

EROSION

Slight or No Change — No Symbol

75° 40' | 75° 37' 30" | 75° 35'

37° 40'

1 MILE

Henrys Pt

Flounder Pt

Tidal Flat

Cedar Pt

Radio Tower

Custis Neck

Knock Knee

Longboat

Cross Creek

Custis Creek

Seaside Road

BM 23

BM 16

Cem

Point of Rocks

Tidal Flat

Cedar Island Bay

Thrasher Gut

Big Thrasher Gut

Channel

Snead Beach

Straight Creek

Southwest Gut

Little Channel

Cross Gut

Teagles Ditch

Custis 4

Burtons Shore

Cedar Island

Cedar Island Beach

1A 1W 1RS 1

605 647 648 646

15

MAP 26A

WACHAPREAGUE AREA

TOPOGRAPHY AND CULTURE

Segment 21 (partial)

// = Segment Boundary

/ = Subsegment Boundary

75° 42' 30"

75° 40'

37° 37' 30"

37° 35'

1 MILE

Chancetown

Locust Mount

Wachapreague

Old Trower

Herbert Ch.

Wachapreague Cem

Nickawampus Creek

Finney Creek

Upper Hauf Over

Custis Channel

Tidal Flat

Fools Gut

Gates Bay

Curlew Bay

BRADFORD BAY

TIDAL FLAT

ROAD

BM 17

BM 11

BM 10

BM 8

BM 6

15

14

MAP 26B

WACHAPREAGUE AREA

SHORELANDS TYPES

Segment 21 (partial)

FASTLAND
- Low Shore
- Artificial Fill

SHORE
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide

75° 42' 30"
75° 40'
37° 37' 30"
37° 35'
1 MILE
Chancetown
Wachapreague Cem
Locust Mount
Wachapreague
Herbert Ch
Old Trower
Nickawampus Creek
Finney Creek
Upper Hog Island Creek
Custis Channel
Tidal Flat
Fools Gut
Wachapreague Channel
Gates Bay
Curlew Bay
TIDAL FLAT
BRADFORD BAY
ORD NECK
15
14

MAP 26C

WACHAPREAGUE AREA
EASTLAND USE, OWNERSHIP, EROSION
Segment 21 (partial)

USE

Agricultural	A
Commercial	C
Residential	RS
Unmanaged Wooded	W

OWNERSHIP

Private	1

EROSION

Slight or No Change	No Symbol

75° 42' 30" — 75° 40' — 37° 37' 30" — 37° 35'

1 MILE

Chancetown · Locust Mount · Wachapreague · Herbert Ch. · Old Trower · Wachapreague Cem

Nickawampus Creek · Upper Hall Overflow · Custis Channel · Tidal Flat · Fools Hall Overflow · Finney Branch · Nickawampus Creek · Wachapreague Creek · BRADFORD BAY · TIDAL FLAT · ROAD · NECK ROAD

15

14

MAP 27A

WACHAPREAGUE INLET
TOPOGRAPHY AND CULTURE

Segments 13 and 14 (partial)

// = Segment Boundary

/ = Subsegment Boundary

75° 37' 30"

75° 36' 15"

37° 37' 30"

37° 35'

BURTONS BAY

ATLANTIC OCEAN

WACHAPREAGUE INLET

TIDAL FLAT 21

Great Channel

CEDAR

Sloop Channel

Great Gut

Sloop

Great Gut Cove

Channel

Hummock Channel

Black Rock Reach

Big Thorofare

Little Wye Channel

Little Thorofare

Big Wye Channel

Trout Channel

Brandywine Channel

Cedar Island

Sandy Pt

Clubhouse Marsh

Fishpen Gut

Horseshoe Lead

Dawson Shoals

Parramore Beach

Coast Guard Station

North Pond

1 MILE

MAP 27B

WACHAPREAGUE INLET

SHORELANDS TYPES

Segments 13 and 14 (partial)

FASTLAND
- Low Shore
- Artificial Fill

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Narrow
- Intermediate
- Wide

75° 37' 30" | 75° 36' 15"

37° 37' 30" | 37° 37' 30"

37° 35' | 37° 35'

Great Channel
CEDAR ISLAND
Sloop Channel
Great Gut
Great Gut Channel
Great Gut Cove
Hummock Channel
TIDAL FLAT
21
Black Rock Reach
Big Thorofare
Little Wye Channel
Little Thorofare
Big Wye Channel
Sandy Pt
Trout Channel
Broadmine Channel
Cedar Island
ATLANTIC OCEAN
Clubhouse Marsh
Fishpen
Dawson Shoals
WACHAPREAGUE INLET
Horseshoe Lead
Parramore Beach
Coast Guard Station
North Pond

½ 0 1 MILE

21

MAP 27C

WACHAPREAGUE INLET

EASTLAND USE, OWNERSHIP, EROSION

Segments 13 and 14 (partial)

USE

Government	G
Preserved	PR
Recreational	RC

OWNERSHIP

Private	1
Federal	2

EROSION

Severe	
Slight or No Change	No Symbol
Accretional	+ + + +

75° 37' 30" 75° 36' 15"

37° 37' 30"

B

Great Channel

CEDAR ISLAND

Sloop Channel

Great Gut

Sloop Channel

Great Gut Cove

Great Gut

Beach

Hummock Channel

TIDAL FLAT

21

1RC

Cedar Island

ATLANTIC OCEAN

21

Black Rock Reach

Big Thorofare

Little Wye Channel

Little Thorofare

Big Wye Channel

Brandywine Channel

Trout Channel

1RC

Sandy Pt

Club

Clubhouse Marsh

37° 35'

Fishpen Gut

Horseshoe Lead.

Dawson Shoals

WACHAPREAGUE INLET

1

Parramore Beach Coast Guard Station

2G

1PR

North Pond

0 1/2 0 1 MILE

75° 37' 30" 75° 36' 15"

MAP 28A

UPSHUR NECK - UPSHUR BAY

TOPOGRAPHY AND CULTURE

Segments 13, 14, 21 (partial)

// = Segment Boundary

/ = Subsegment Boundary

75° 45'

37° 35'

37° 32' 30"

Frogstool

Piggen

Mappsburg

Coal Kiln

Quinby

Tidal Flat

Swamp

Moreland

Branch

MACHIPONGO

RIVER

BRADFORD NECK

URSHUR NECK

URSHUR BAY

TIDAL FLAT

Pealer Pt.

13

14

1 MILE

MAP 28B

UPSHUR NECK - UPSHUR BAY

SHORELANDS TYPES

Segments 13, 14, 21 (partial)

FASTLAND
- Low Shore
- Artificial Fill

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide

75° 45'

37° 35'

37° 32' 30"

Frogstool

Cem

Piggen

Mappsburg

BM 25

Coal Kiln

Morelands Swamp

Tidal Flat

Quinby

BM 13

BM 12

BM 7

BM 9

Cems

Pealer Pt.

MACHIPONGO RIVER

BRADFORD NECK

UPSHUR NECK

UPSHUR BAY

TIDAL FLAT

13

14

1 MILE

MAP 28C

UPSHUR NECK - UPSHUR BAY

FASTLAND USE, OWNERSHIP, EROSION

Segments 13, 14, 21 (partial)

USE		
	Agricultural	A
	Commercial	C
	Residential	RS
	Unmanaged	
	Wooded	W
OWNERSHIP		
	Private	1
EROSION		
	Slight or No Change	No Symbol

13

MAP 29A

UPSHUR NECK - SWASH BAY

TOPOGRAPHY AND CULTURE

Segments 13, 14, 21 (partial)

// = Segment Boundary

/ = Subsegment Boundary

75° 45'

75° 42' 30"

75° 40'

37° 32' 30"

MACHIPONGO

BRADFORD

TIDAL FLAT

Clark Bay

Seal Creek

Little Seal Creek

Chalk Pt.

Gut

Creek

Wire Creek

Hog Creek

Waterhole Creek

SWASH BAY

Shell Narrows

Mullet Creek

White Trout Creek

Ebb Tide Cr

Tidal Flat

Quinby

Tidal Flat

URSHUR NECK

Pealer Pt.

BAY

13

14

21

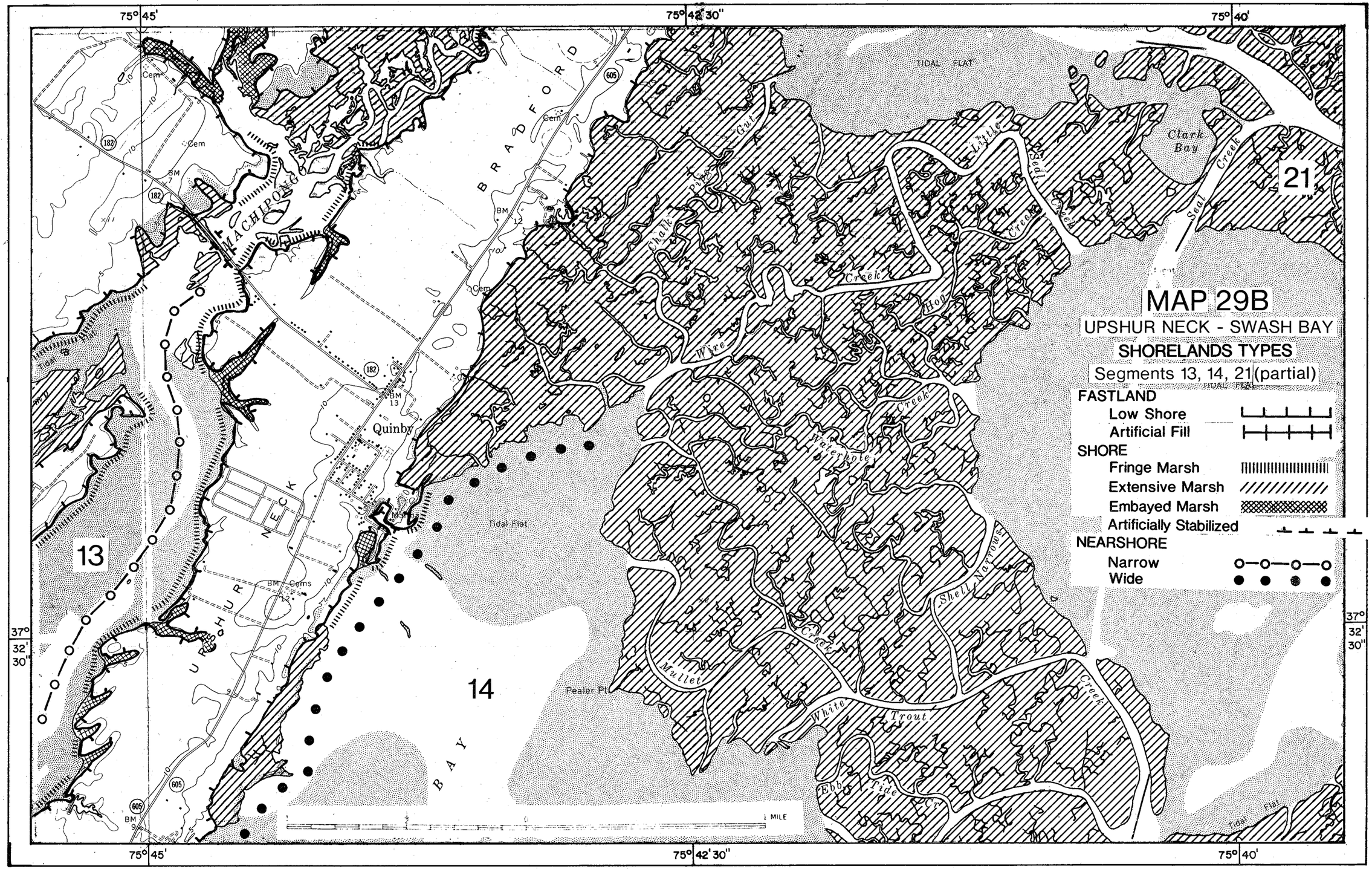
Cem

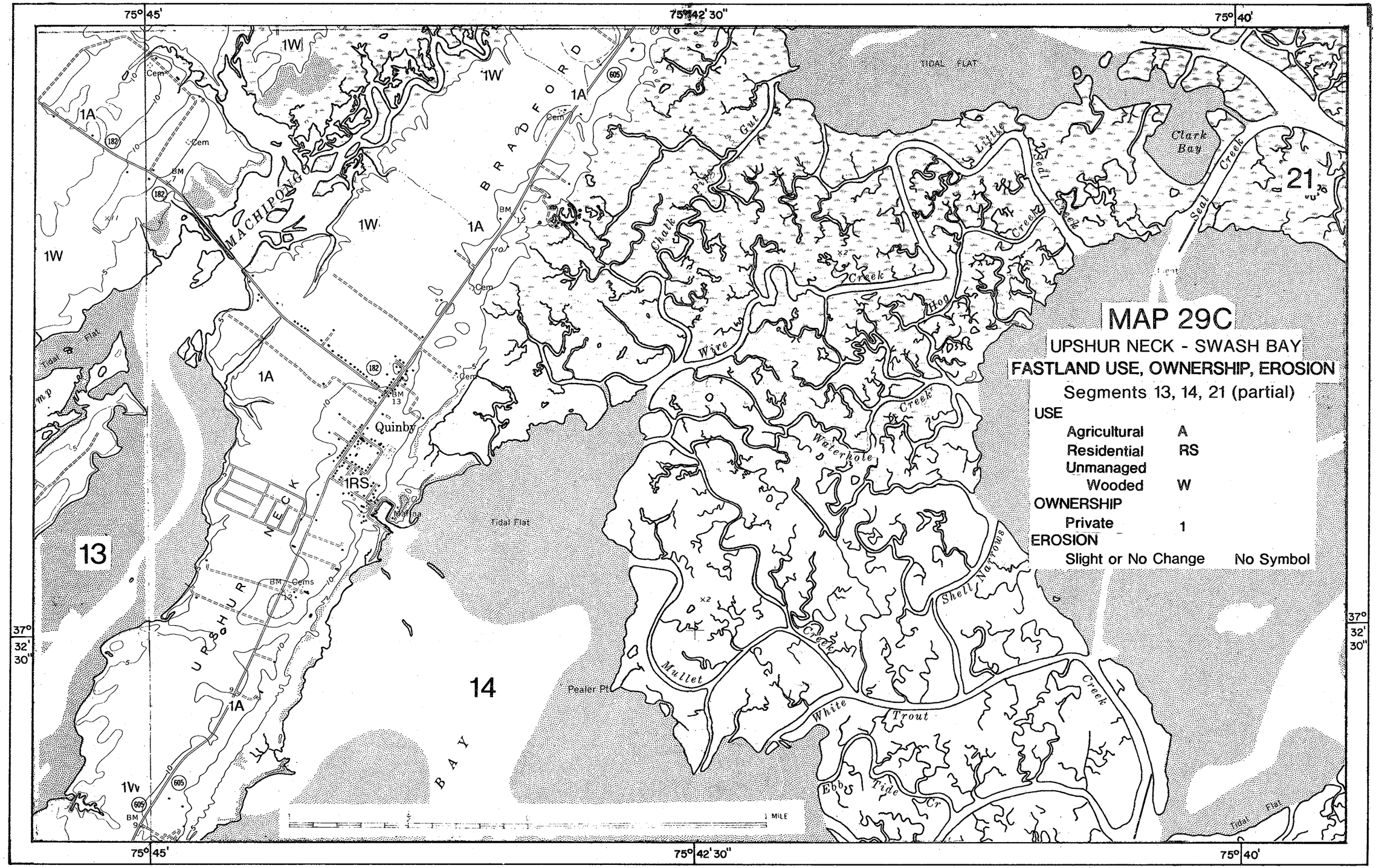
BM

182

605

1 MILE


75° 45'
75° 42' 30"
75° 40'
37° 32' 30"
MAP 29B
UPSHUR NECK - SWASH BAY
SHORELANDS TYPES
Segments 13, 14, 21(partial)
FASTLAND
Low Shore
Artificial Fill
SHORE
Fringe Marsh
Extensive Marsh
Embayed Marsh
Artificially Stabilized
NEARSHORE
Narrow
Wide
13
14
21
MACHIPONGO
BRADFORD
UPSHUR NECK
BAY
Quinby
Cem
BM 7
BM 12
BM 13
BM Cems
BM 9
Tidal Flat
TIDAL FLAT
Clark Bay
Little Seal Creek
Seal Creek
Chalk Pine Gut
Wire Creek
Hog Creek
Waterhole Creek
Mullet Creek
White Trout Creek
Ebb Tide Cr
Shell Narrows
Pealer Pt
182
605
1 MILE


75° 45'
75° 42' 30"
75° 40'
37° 32' 30"
MAP 29C
UPSHUR NECK - SWASH BAY
FASTLAND USE, OWNERSHIP, EROSION
Segments 13, 14, 21 (partial)
USE
Agricultural A
Residential RS
Unmanaged
Wooded W
OWNERSHIP
Private 1
EROSION
Slight or No Change No Symbol
MACHIPONGO
BRADFORD
Quinby
Marina
Tidal Flat
Pealer Pt
Cem
BM
Gut
Creek
Shell Narrows
Mullet
White Trout
Ebbs Tide Cr
Waterhole
Hog
Wire
Little Seal Creek
Clark Bay
Seal Creek
Tidal Flat
BAY
MILE
13
14
21
1W
1A
1RS
1Vv

MAP 30A

UPSHUR NECK - SANDY ISLAND

TOPOGRAPHY AND CULTURE

Segments 13, 14, 21 (partial)

// = Segment Boundary

/ = Subsegment Boundary

MAP 30B

UPSHUR NECK - SANDY ISLAND

SHORELANDS TYPES

Segments 13, 14, 21(partial)

FASTLAND

Low Shore

SHORE

Fringe Marsh

Extensive Marsh

NEARSHORE

Intermediate

Wide

75° 45'

37° 30'

37° 27' 30"

13

14

21

BM 11

BM 9

10

UPSHUR BAY

Tidal Flat

TIDAL FLAT

Little Gap Channel

Middle Gap Channel

Gap Channel

Cockle Cr.

Tidal Flat

Bordenstake Bay

SANDY ISLAND

Channel

South Bordenstake Notch

Sloop

Cunjer

Little Camp Channel

Black Duck Cove

TIDAL FLAT

TIDAL FLAT

Cunjer Channel

North Channel

Egging Marsh

MAP 30C

UPSHUR NECK - SANDY ISLAND

EASTLAND USE, OWNERSHIP, EROSION

Segments 13, 14, 21 (partial)

USE	
Agricultural	A
Wooded	W
OWNERSHIP	
Private	1
EROSION	
Slight or No Change	No Symbol

75° 45'

37° 30'

37° 27' 30"

13 14 21

1W 1A

UPSHUR BAY

Tidal Flat

TIDAL FLAT

Little Gap Channel

Middle Gap Channel

Gap Channel

Cockle Cr

Bordenstake Bay

South Bordenstake Notch

Sloop Channel

SANDY ISLAND

Cunjer

Cunjer Channel

Little Camp Channel

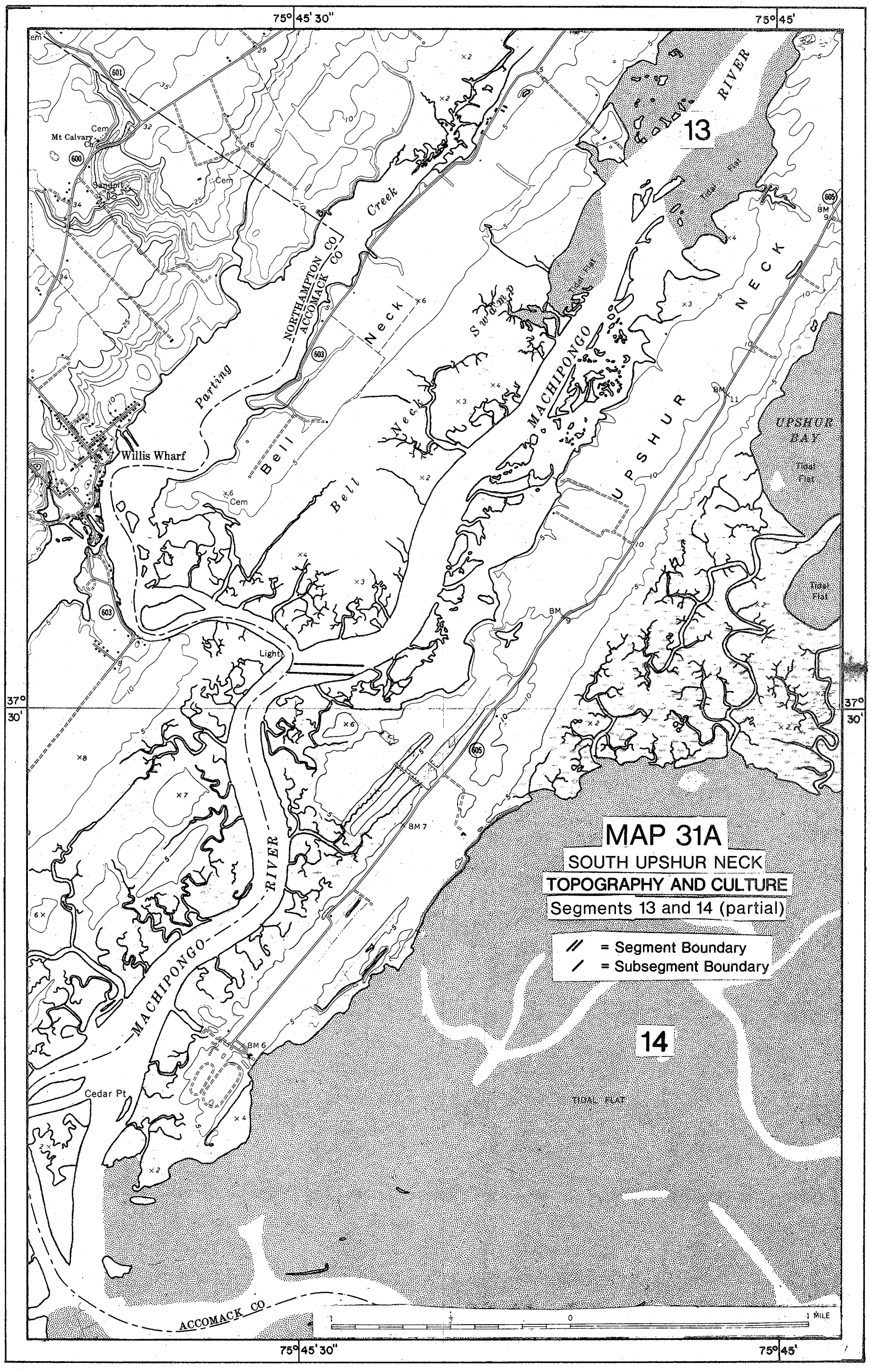
Black Duck Cove

North Channel

Egging Marsh

BM

×2


75° 45' 30"
75° 45'
37° 30'
13
14
Galls
RIVER
Creek
NORTHAMPTON CO
ACCOMACK CO
Neck
Swamp
MACHIPONGO
RIVER
NECK
UPSHUR
BAY
Tidal Flat
Tidal Flat
Tidal Flat
Tidal Flat
Parting
Bell
Bell
Neck
Willis Wharf
Mt Calvary Ch
Cem
Cem
Cem
Sandpit
Light
Cedar Pt
BM 11
BM 9
BM 9
BM 7
BM 6
601
600
603
603
603
605
605
ACCOMACK CO
1 0 1 MILE
MAP 31A
SOUTH UPSHUR NECK
TOPOGRAPHY AND CULTURE
Segments 13 and 14 (partial)
// = Segment Boundary
/ = Subsegment Boundary

MAP 31B

SOUTH UPSHUR NECK

SHORELANDS TYPES

Segments 13 and 14 (partial)

FASTLAND
- Low Shore

SHORE
- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh

NEARSHORE
- Wide

75° 45' 30"

75° 45'

37° 30'

13

14

Willis Wharf

Cedar Pt

Light

Cem

Tidal Flat

TIDAL FLAT

BM 9

BM 7

BM 6

BM 11

603

605

Parting Creek

Bell Neck

Swamp

MACHIPONGO RIVER

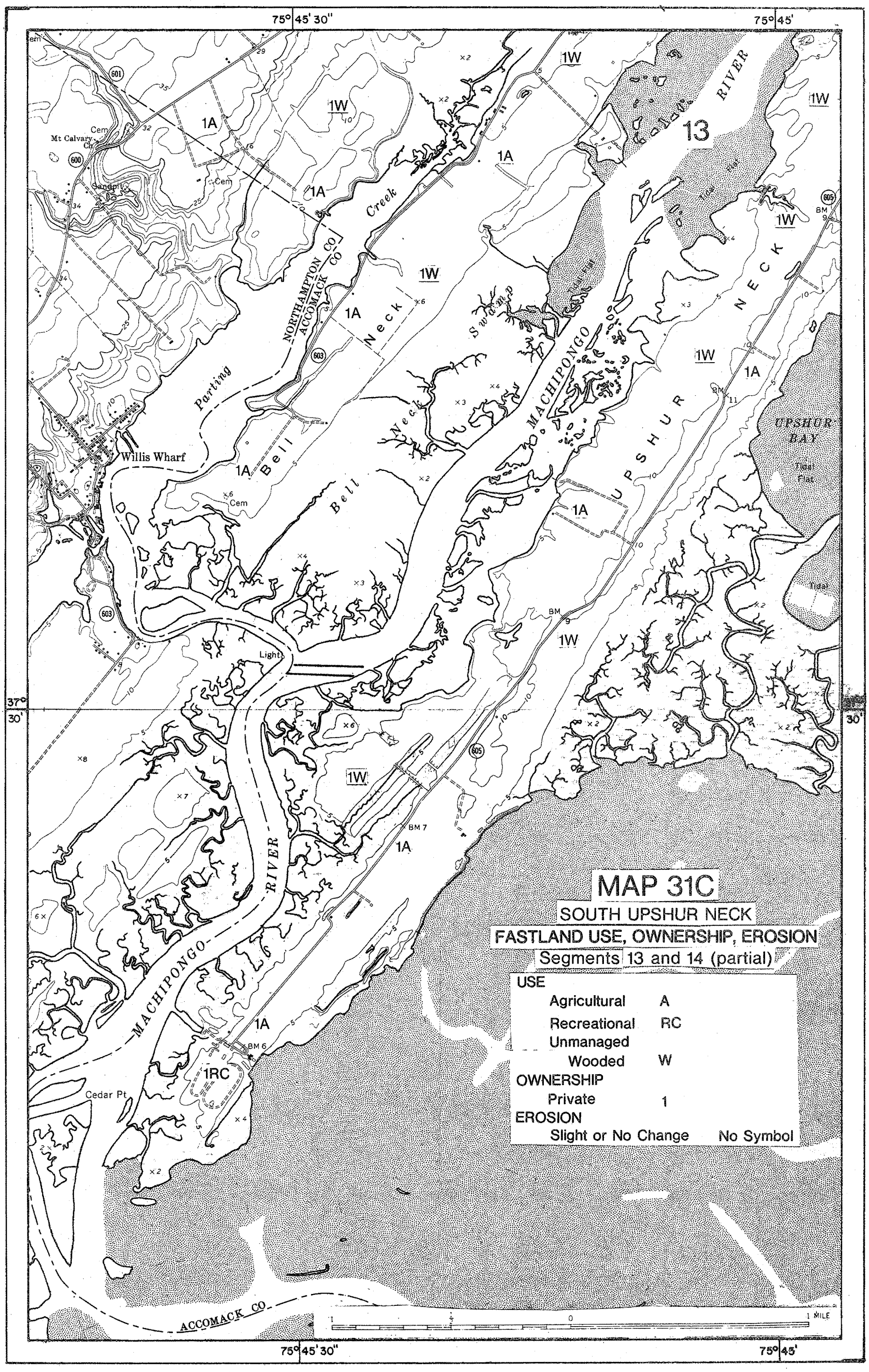
UPSHUR NECK

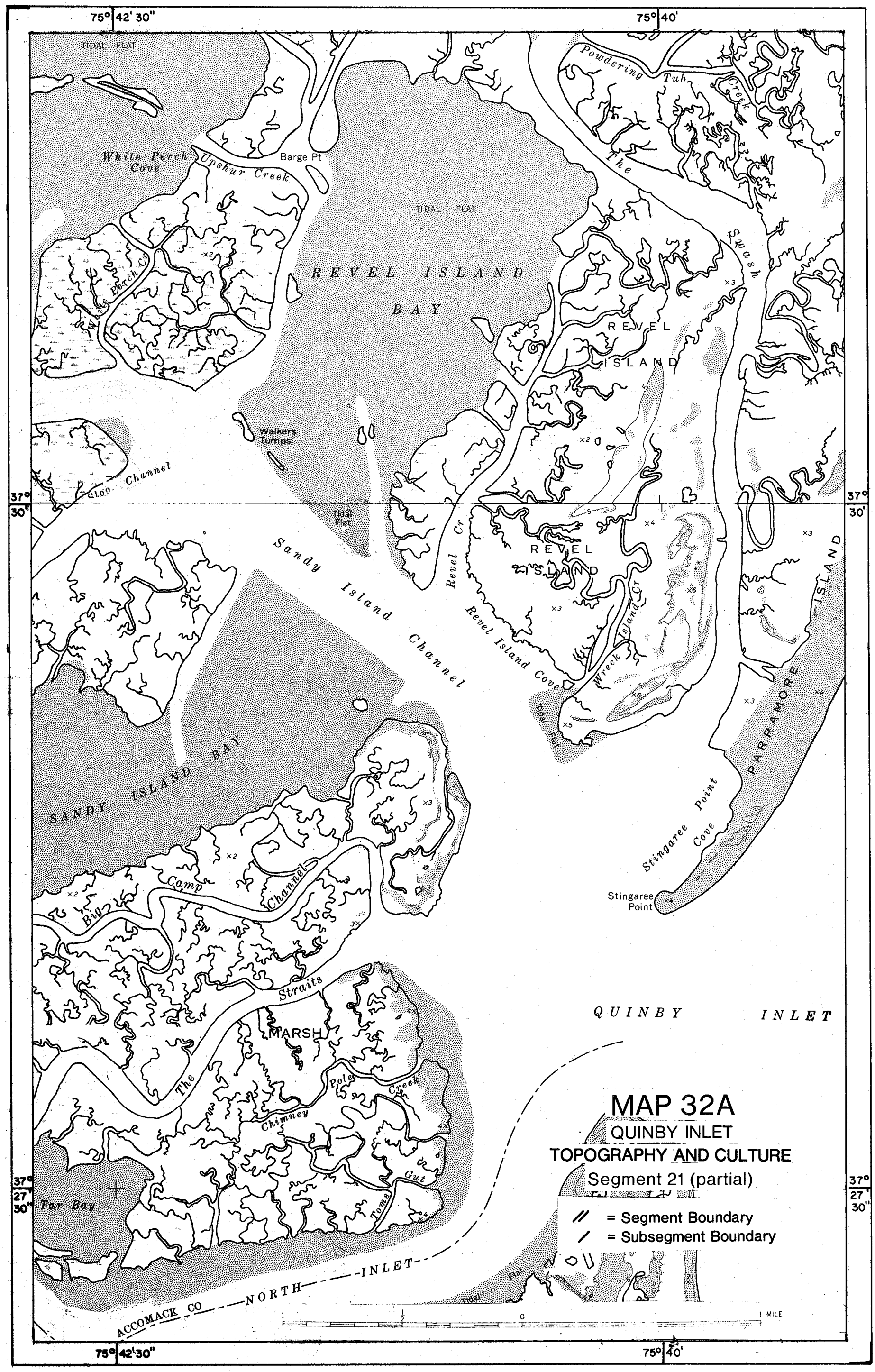
CABBAGE RIVER

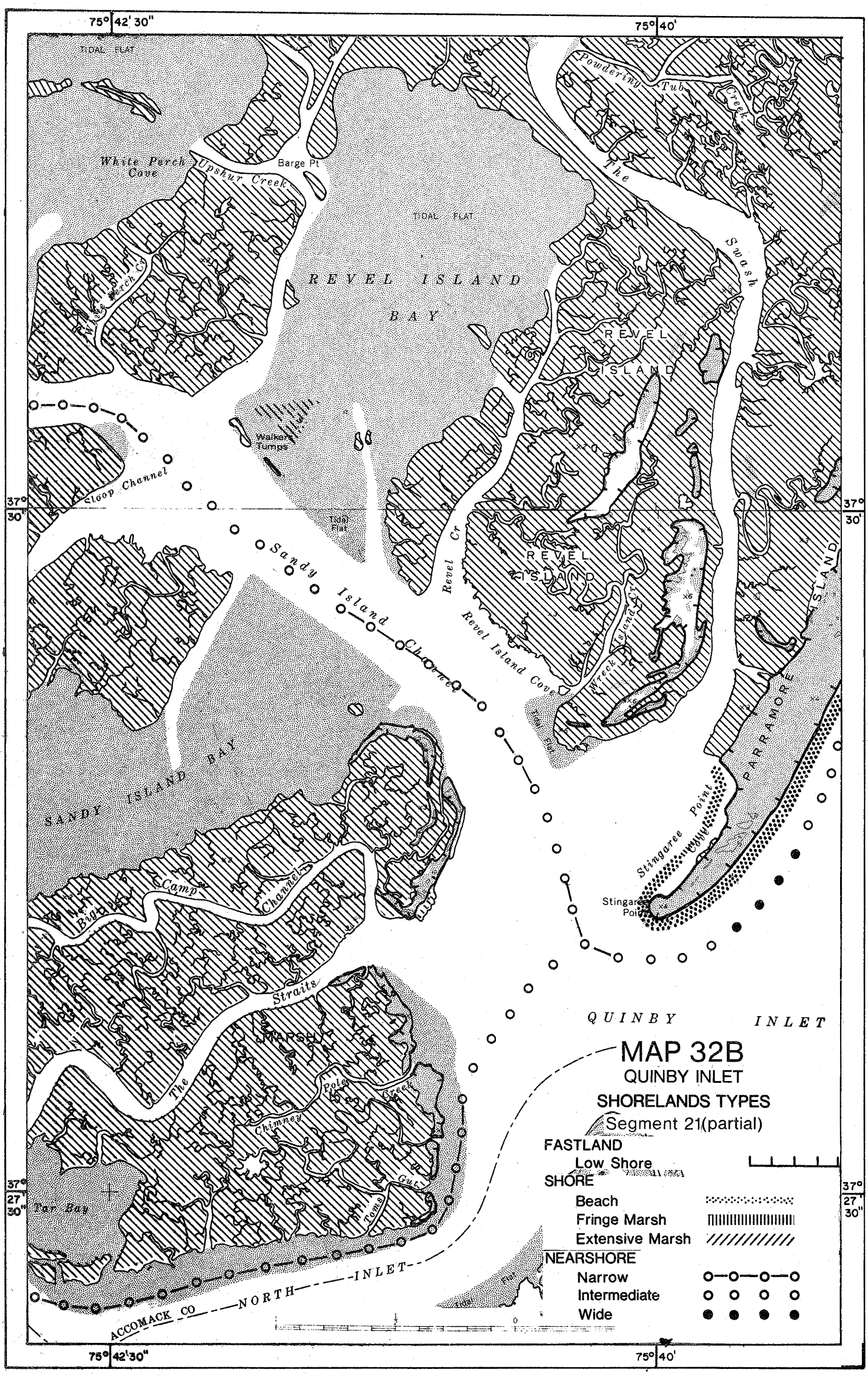
UPSHUR BAY

ACCOMACK CO

1 0 1 MILE


75° 45' 30"
75° 45'
37° 30'
13
14
1A
1W
1RC
Creek
Neck
Swamp
Parting
Bell
Light
Cem
Sandpit
Mt Calvary Ch
Willis Wharf
Cedar Pt
BM 6
BM 7
BM 9
BM 11
Tidal Flat
Tidal
NORTHAMPTON CO
ACCOMACK CO
MACHIPONGO RIVER
UPSHUR NECK
UPSHUR BAY
MAP 31C
SOUTH UPSHUR NECK
FASTLAND USE, OWNERSHIP, EROSION
Segments 13 and 14 (partial)
USE
Agricultural A
Recreational RC
Unmanaged
Wooded W
OWNERSHIP
Private 1
EROSION
Slight or No Change No Symbol
1 0 1 MILE


75° 42' 30"
75° 40'
37° 30'
37° 27' 30"
TIDAL FLAT
White Perch Cove
Upshur Creek
Barge Pt
Perch Cr
REVEL ISLAND BAY
TIDAL FLAT
Powdering Tub Creek
The
Swash
REVEL ISLAND
Walkers Tumps
Sloo Channel
Tidal Flat
Revel Cr
REVEL ISLAND
Revel Island Cove
Wreck Island Cr
Tidal Flat
Sandy Island Channel
PARRAMORE ISLAND
SANDY ISLAND BAY
Big Camp Channel
Stingaree Point Cove
Stingaree Point
Straits
MARSH
The
Chimney Pole Creek
Toms Gut
Tar Bay
QUINBY INLET
ACCOMACK CO
NORTH
INLET
1 MILE
MAP 32A
QUINBY INLET
TOPOGRAPHY AND CULTURE
Segment 21 (partial)
= Segment Boundary
= Subsegment Boundary


75° 42' 30"
75° 40'
37° 30'
37° 27' 30"
TIDAL FLAT
White Perch Cove
Upshur Creek
Barge Pt
REVEL ISLAND BAY
Powdering Tub Creek
The
Swash
REVEL ISLAND
Walkers Tumps
Sloop Channel
Tidal Flat
Sandy Island Channel
Revel Cr
Revel Island Cove
Wreck Island Cr
PARRAMORE ISLAND
SANDY ISLAND BAY
Stingaree Point
Big Camp Channel
Straits
MARSH
The
Chimney
Poles
Toms Gut
Bar Bay
QUINBY INLET
ACCOMACK CO
NORTH INLET
MAP 32B
QUINBY INLET
SHORELANDS TYPES
Segment 21(partial)
FASTLAND
Low Shore
SHORE
Beach
Fringe Marsh
Extensive Marsh
NEARSHORE
Narrow
Intermediate
Wide

MAP 31C

SOUTH UPSHUR NECK

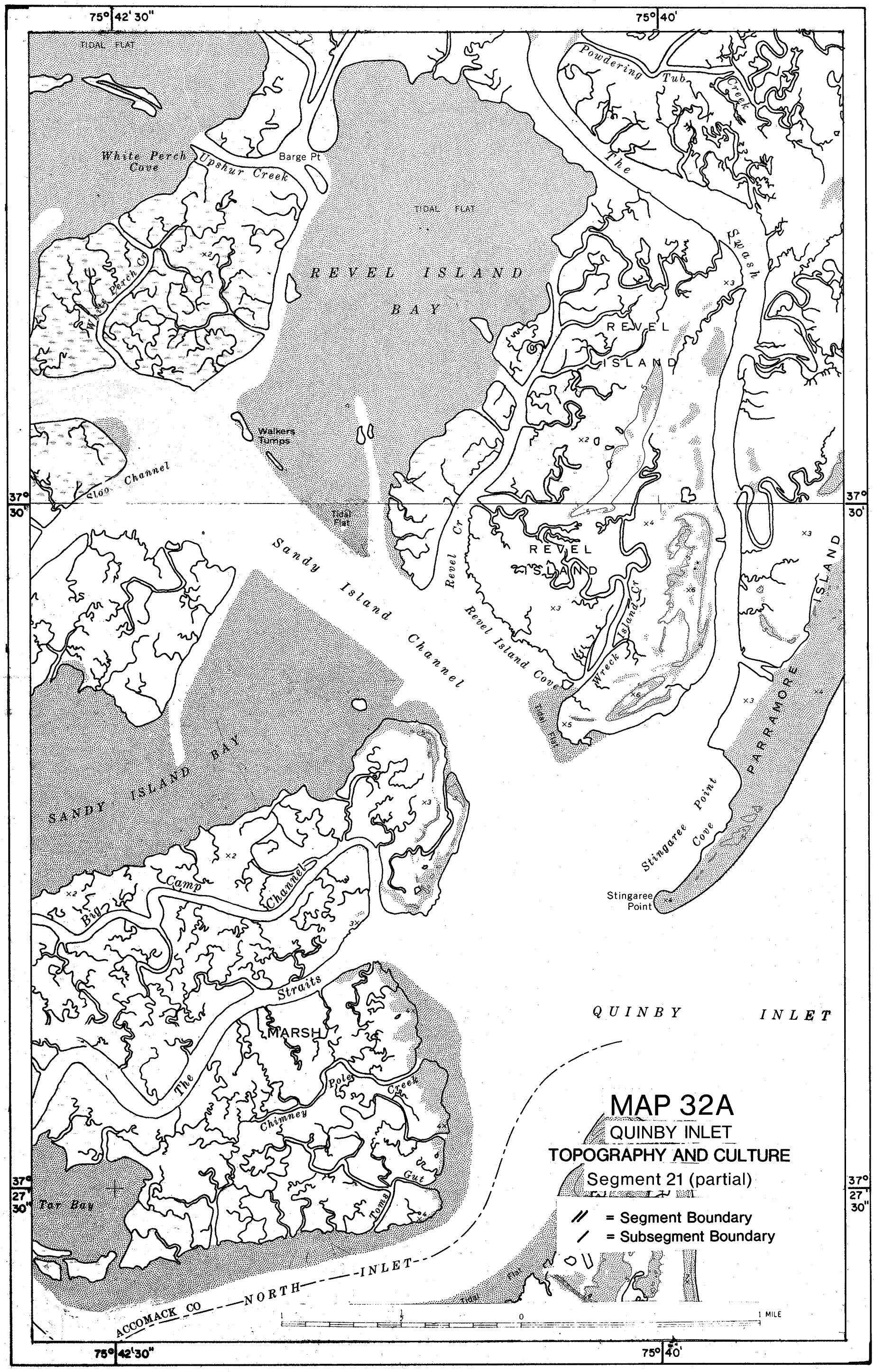
FASTLAND USE, OWNERSHIP, EROSION

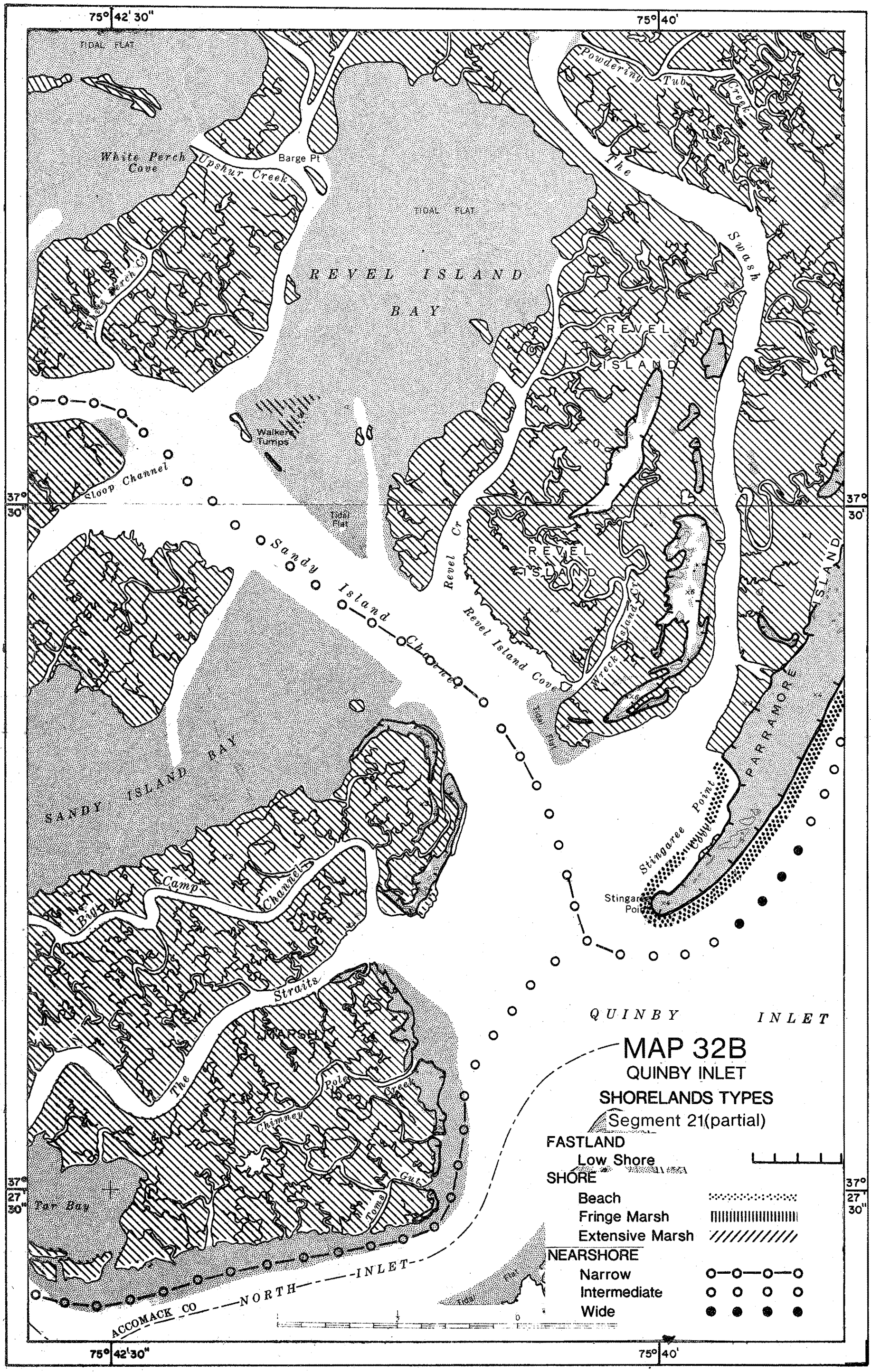
Segments 13 and 14 (partial)

USE	
Agricultural	A
Recreational	RC
Unmanaged Wooded	W
OWNERSHIP	
Private	1
EROSION	
Slight or No Change	No Symbol

75° 45' 30" — 75° 45' — 37° 30'

1 0 1 MILE


75° 42' 30"
75° 40'
37° 30'
37° 27' 30"
TIDAL FLAT
White Perch Cove
Upshur Creek
Barge Pt
Powdering Tub Creek
The
Swash
REVEL ISLAND
BAY
REVEL ISLAND
Walkers Tumps
Gloo Channel
Tidal Flat
Revel Cr
Revel Island Cove
Wreck Island Cr
Tidal Flat
PARRAMORE ISLAND
Sandy Island Channel
SANDY ISLAND
BAY
Camp
Channel
Big
Straits
MARSH
The
Chimney
Poles
Creek
Toms
Gut
Tar Bay
Stingaree Point Cove
Stingaree Point
QUINBY INLET
ACCOMACK CO
NORTH
INLET
1 0 1 MILE
MAP 32A
QUINBY INLET
TOPOGRAPHY AND CULTURE
Segment 21 (partial)
// = Segment Boundary
/ = Subsegment Boundary


75° 42' 30"
75° 40'
37° 30'
37° 27' 30"
TIDAL FLAT
White Perch Cove
Upshur Creek
Barge Pt
REVEL ISLAND
BAY
Powderhorn
Tub
Creek
The
Swash
REVEL ISLAND
Walkers Tumps
Sloop Channel
Tidal Flat
Revel Cr
Revel Island Cove
Wreck Island Cr
Sandy Island Channel
SANDY ISLAND BAY
Big Bay
Camp
Channel
Straits
The
MARSH
Chimney
Poles
Toms
Creek
Gut
Bar Bay
PARRAMORE ISLAND
Stingaree Point
Stingaree Point
QUINBY INLET
ACCOMACK CO
NORTH
INLET
MAP 32B
QUINBY INLET
SHORELANDS TYPES
Segment 21(partial)
FASTLAND
Low Shore
SHORE
Beach
Fringe Marsh
Extensive Marsh
NEARSHORE
Narrow
Intermediate
Wide

MAP 32C

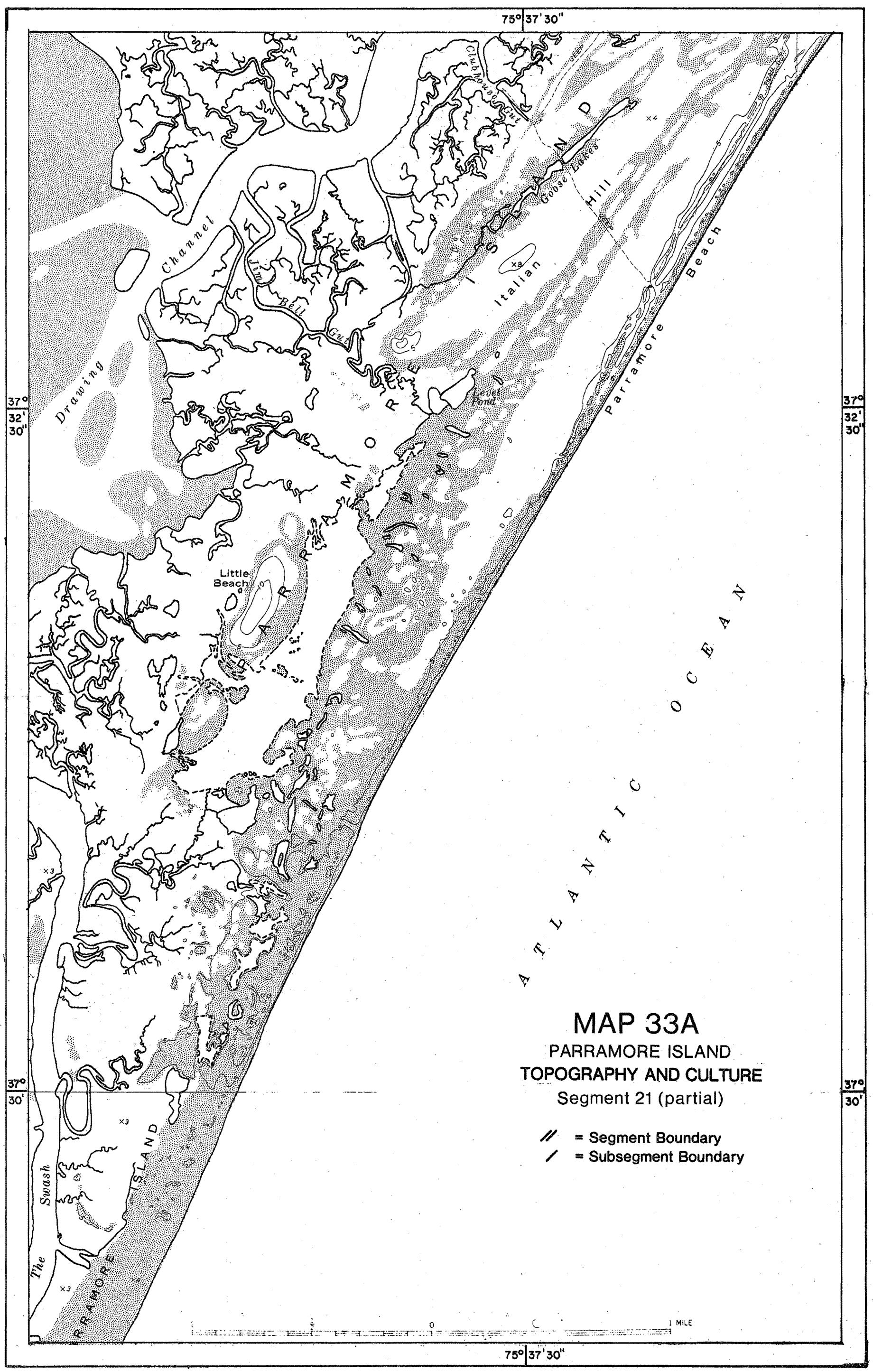
QUINBY INLET

FASTLAND USE, OWNERSHIP, EROSION

Segment 21 (partial)

USE	
Preserved	PR
OWNERSHIP	
Private	1
EROSION	
Severe	
Slight or No Change	No Symbol

75° 42' 30"
75° 40'
37° 30'
37° 27' 30"
TIDAL FLAT
White Perch
Barge Pt
Creek
Powdering
Tub
Creek
The
REVEL ISLAND BAY
Swash
REVEL ISLAND
Walkers Tumps
Sloop Channel
Tidal Flat
Revel Cr
Revel Island Cove
Wreck Island Cr
Tidal Flat
Sandy Island Channel
SANDY ISLAND BAY
Big Camp Channel
Straits
MARSH
The
Chimney
Pole
Creek
Toms Gut
Tar Bay
1PR
PARRAMORE ISLAND
Stingaree Point Cove
Stingaree Point
QUINBY INLET
ACCOMACK CO
NORTH INLET
1 0 1 MILE

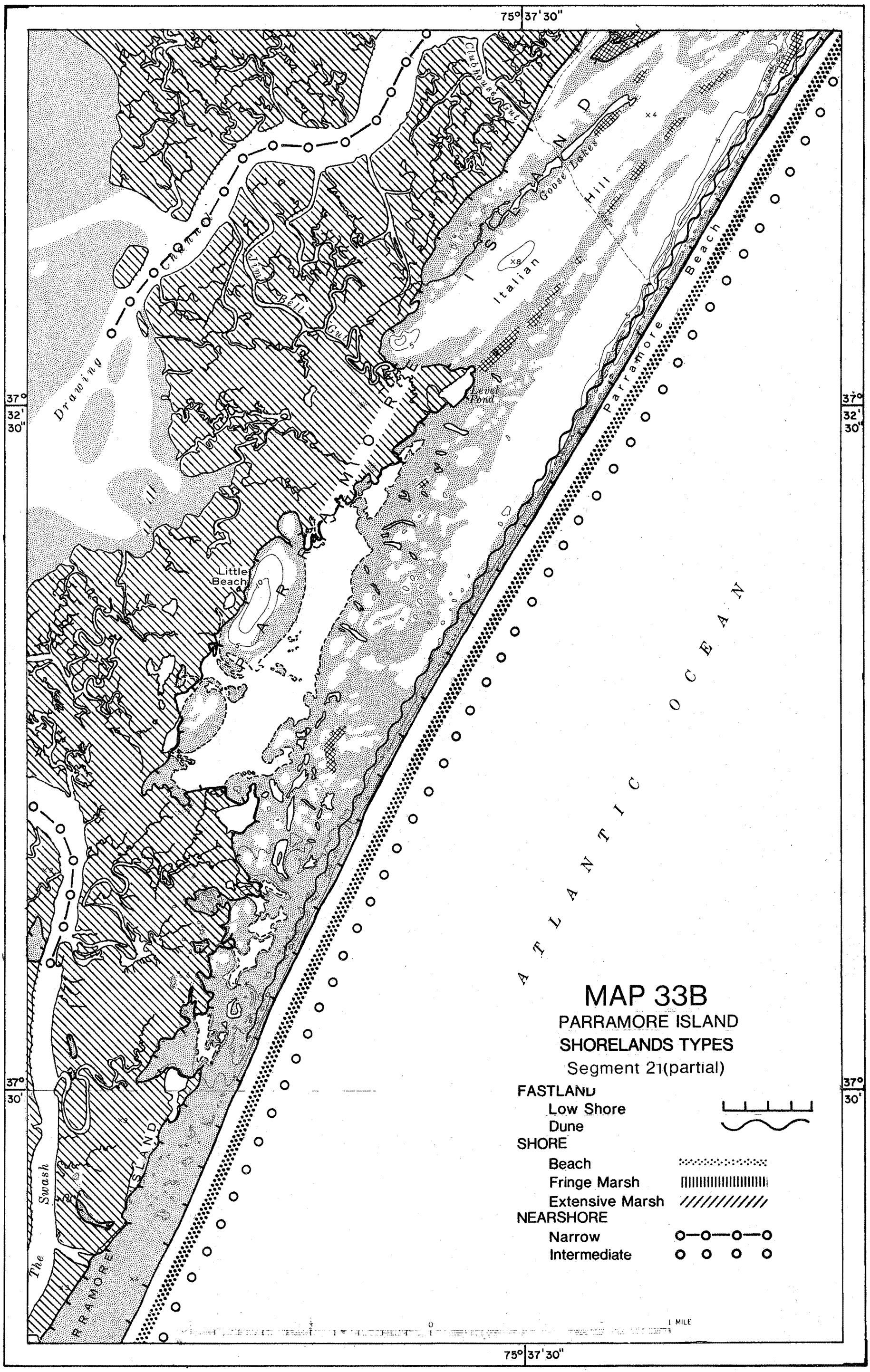


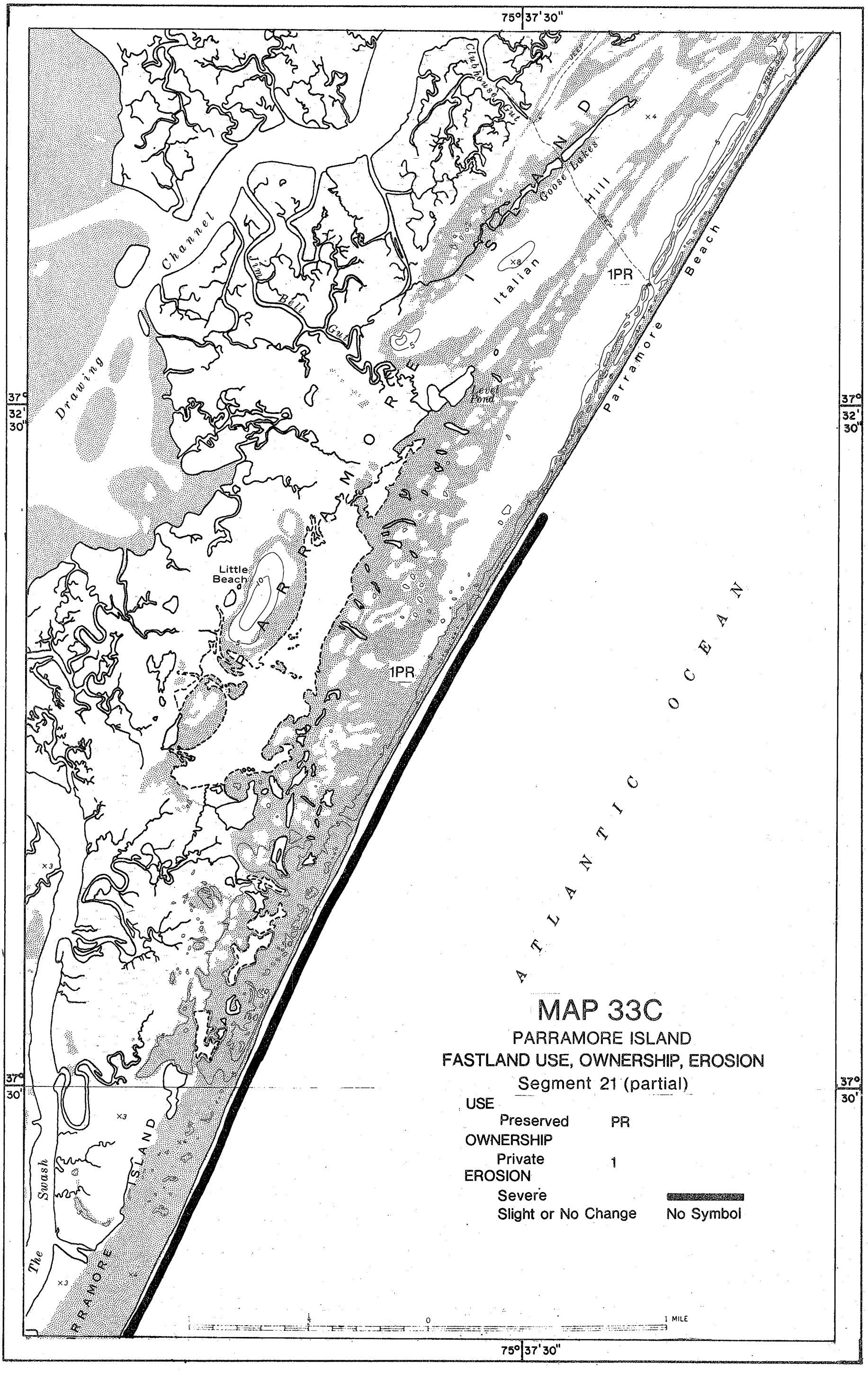
MAP 33A

PARRAMORE ISLAND
TOPOGRAPHY AND CULTURE

Segment 21 (partial)

// = Segment Boundary
/ = Subsegment Boundary


75° 37' 30"
37° 32' 30"
37° 30'
Drawing Channel
Clubhouse Gut
Jim Bell Gut
Goose Lakes
Hill
Italian
Level Pond
Parramore Beach
Little Beach
The Swash
PARRAMORE ISLAND
ATLANTIC OCEAN
MAP 33B
PARRAMORE ISLAND
SHORELANDS TYPES
Segment 21(partial)
FASTLAND
Low Shore
Dune
SHORE
Beach
Fringe Marsh
Extensive Marsh
NEARSHORE
Narrow
Intermediate
0
1 MILE


75° 37' 30"
37° 32' 30"
37° 30'
Drawing Channel
Jam Bell Gut
Clubhouse Gut
Goose Lakes
Hill
Italian
Level Pond
Little Beach
Swash
The
ISLAND
PARRAMORE
BARRIER
Parramore Beach
1PR
ATLANTIC OCEAN
MAP 33C
PARRAMORE ISLAND
FASTLAND USE, OWNERSHIP, EROSION
Segment 21 (partial)
USE
Preserved PR
OWNERSHIP
Private 1
EROSION
Severe
Slight or No Change No Symbol
½ 0 1 MILE

MAP 34A

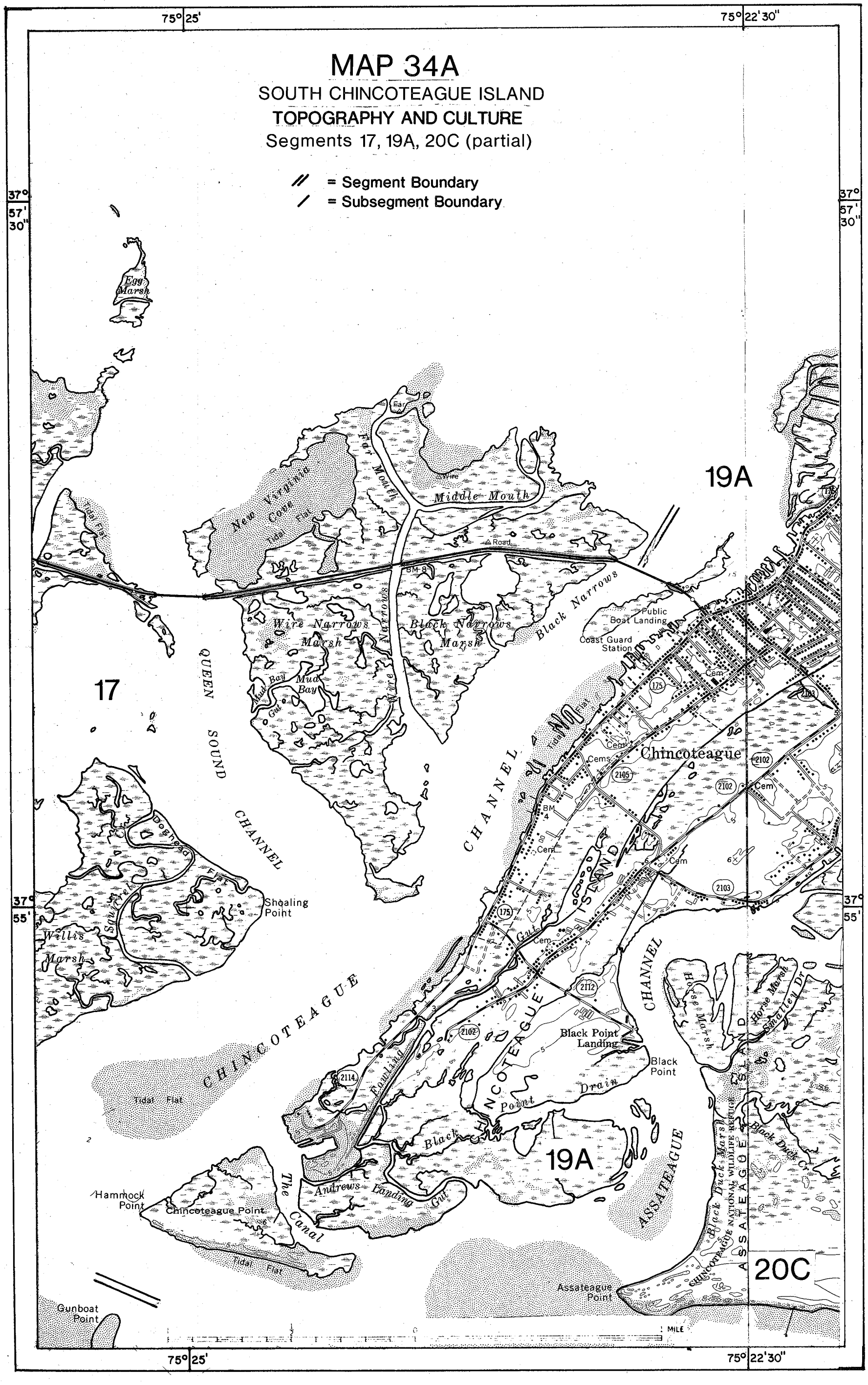
SOUTH CHINCOTEAGUE ISLAND

TOPOGRAPHY AND CULTURE

Segments 17, 19A, 20C (partial)

// = Segment Boundary

/ = Subsegment Boundary



MAP 34B

SOUTH CHINCOTEAGUE ISLAND

SHORELANDS TYPES

Segments 17, 19A, 20C (partial)

FASTLAND

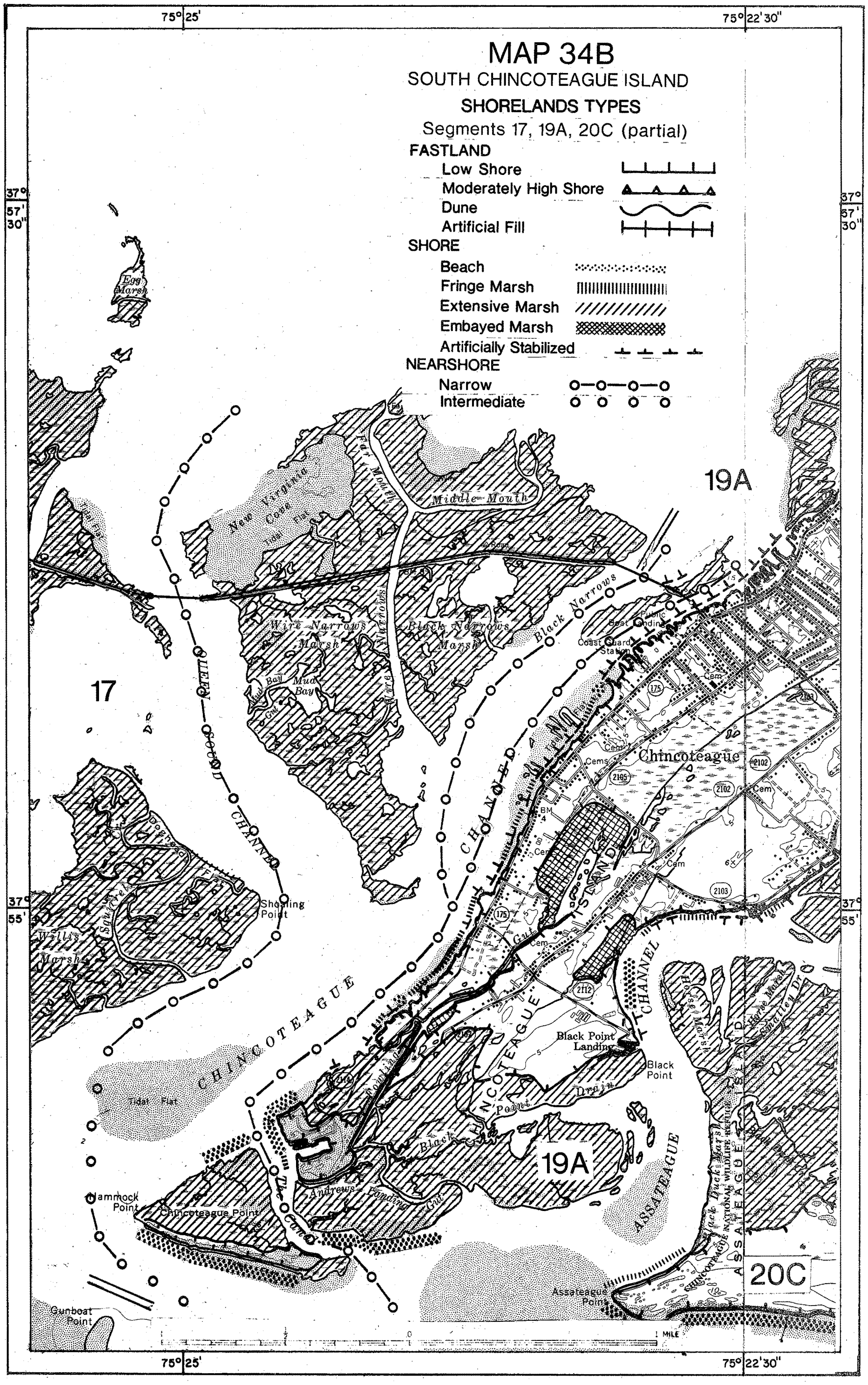
- Low Shore
- Moderately High Shore
- Dune
- Artificial Fill

SHORE

- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh
- Artificially Stabilized

NEARSHORE

- Narrow
- Intermediate



MAP 34C

SOUTH CHINCOTEAGUE ISLAND

FASTLAND USE, OWNERSHIP, EROSION

Segments 17, 19A, 20C (partial)

USE

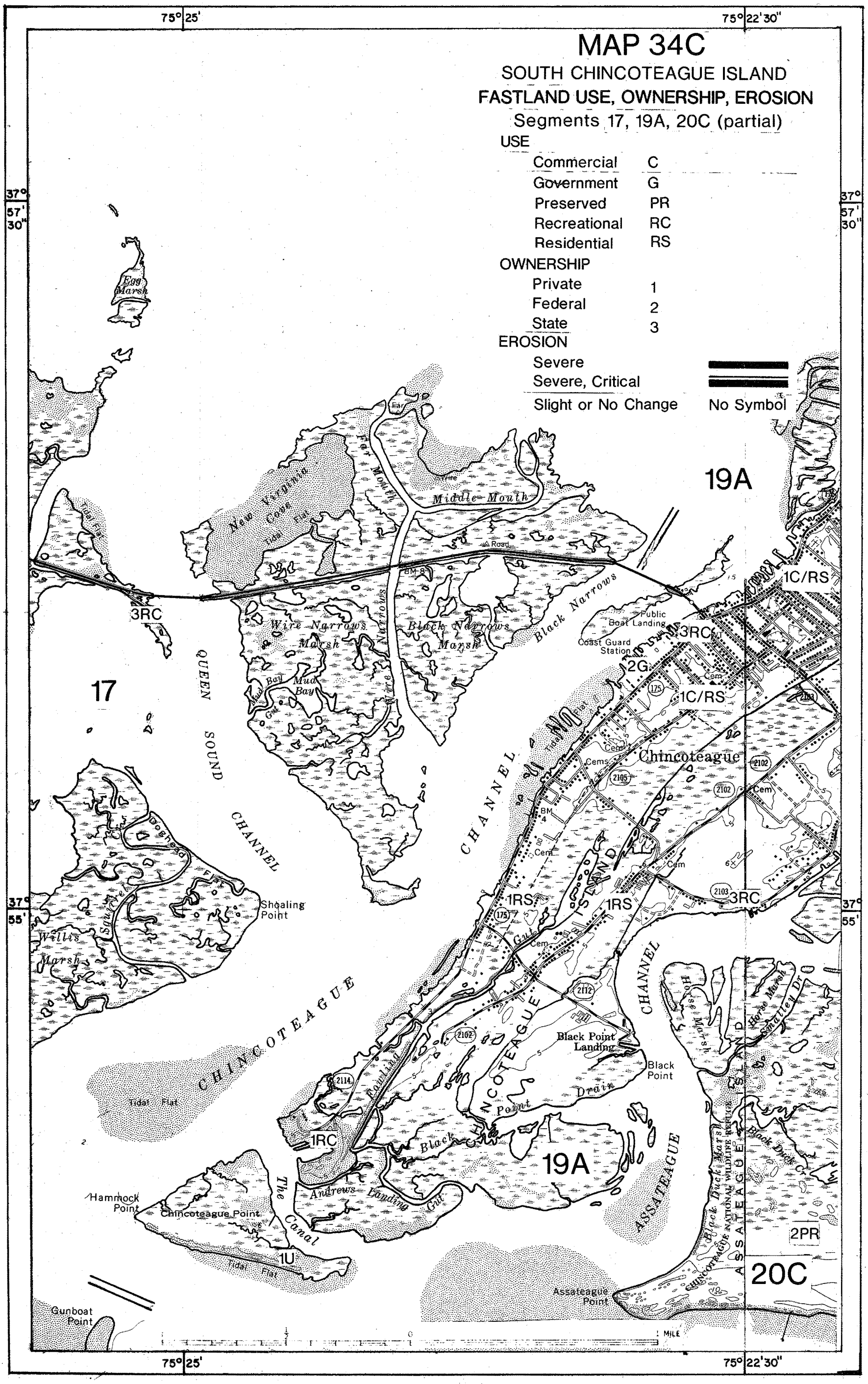
Commercial	C
Government	G
Preserved	PR
Recreational	RC
Residential	RS

OWNERSHIP

Private	1
Federal	2
State	3

EROSION

Severe	
Severe, Critical	
Slight or No Change	No Symbol



MAP 35A

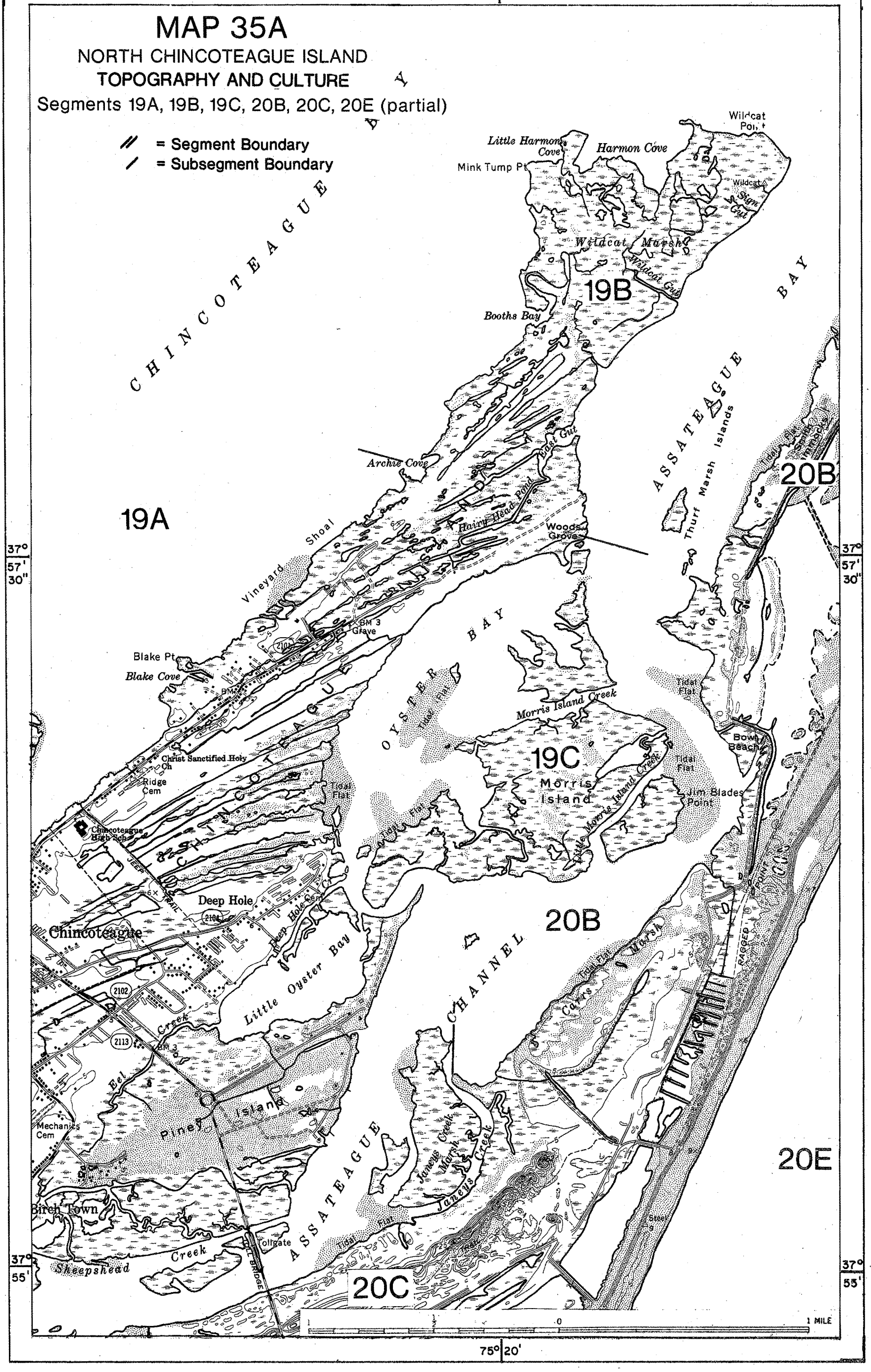
NORTH CHINCOTEAGUE ISLAND

TOPOGRAPHY AND CULTURE

Segments 19A, 19B, 19C, 20B, 20C, 20E (partial)

// = Segment Boundary

/ = Subsegment Boundary



MAP 35B

NORTH CHINCOTEAGUE ISLAND

SHORELANDS TYPES

Segments 19A, 19B, 19C, 20B, 20C, 20E(partial)

FASTLAND

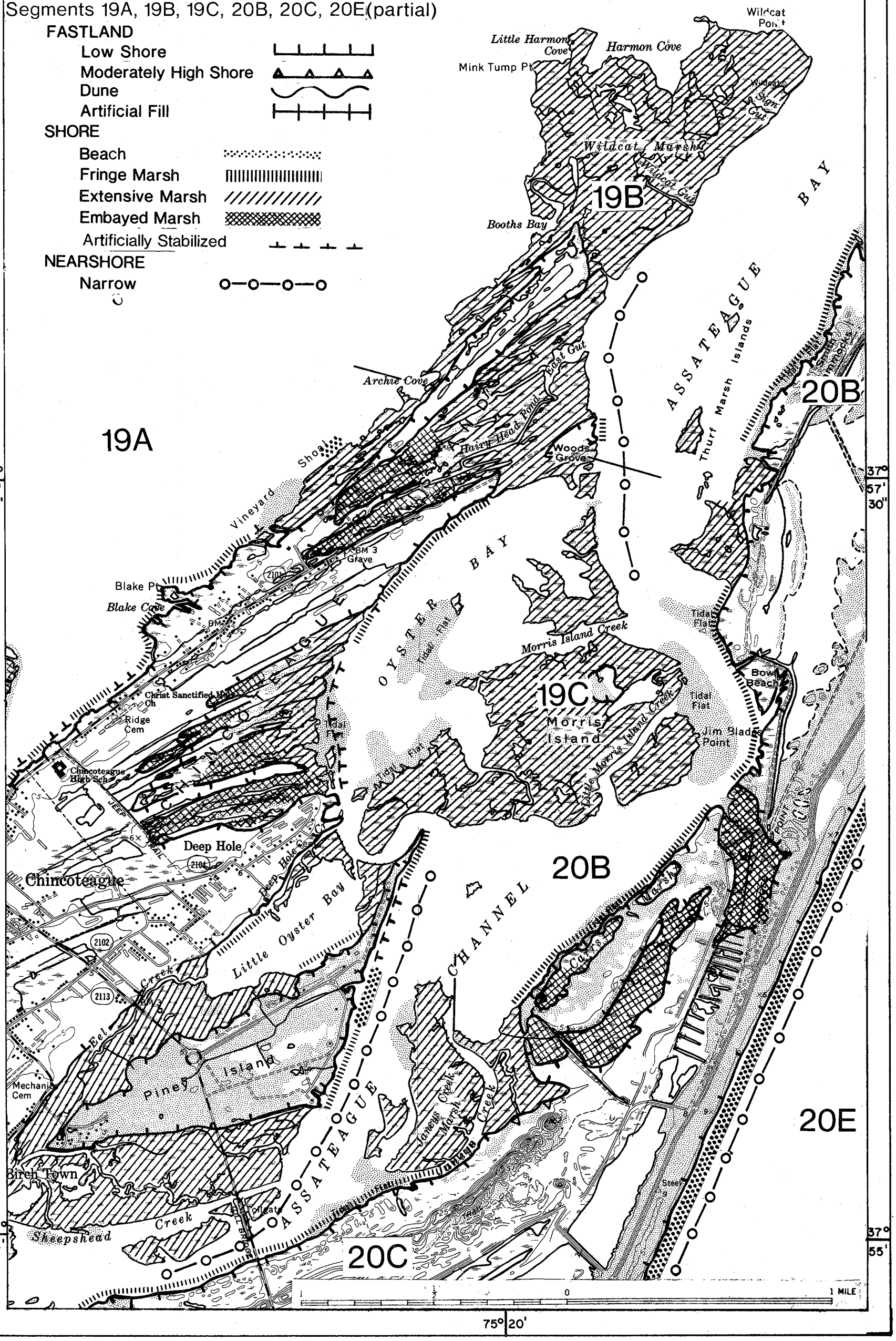
- Low Shore
- Moderately High Shore
- Dune
- Artificial Fill

SHORE

- Beach
- Fringe Marsh
- Extensive Marsh
- Embayed Marsh
- Artificially Stabilized

NEARSHORE

- Narrow



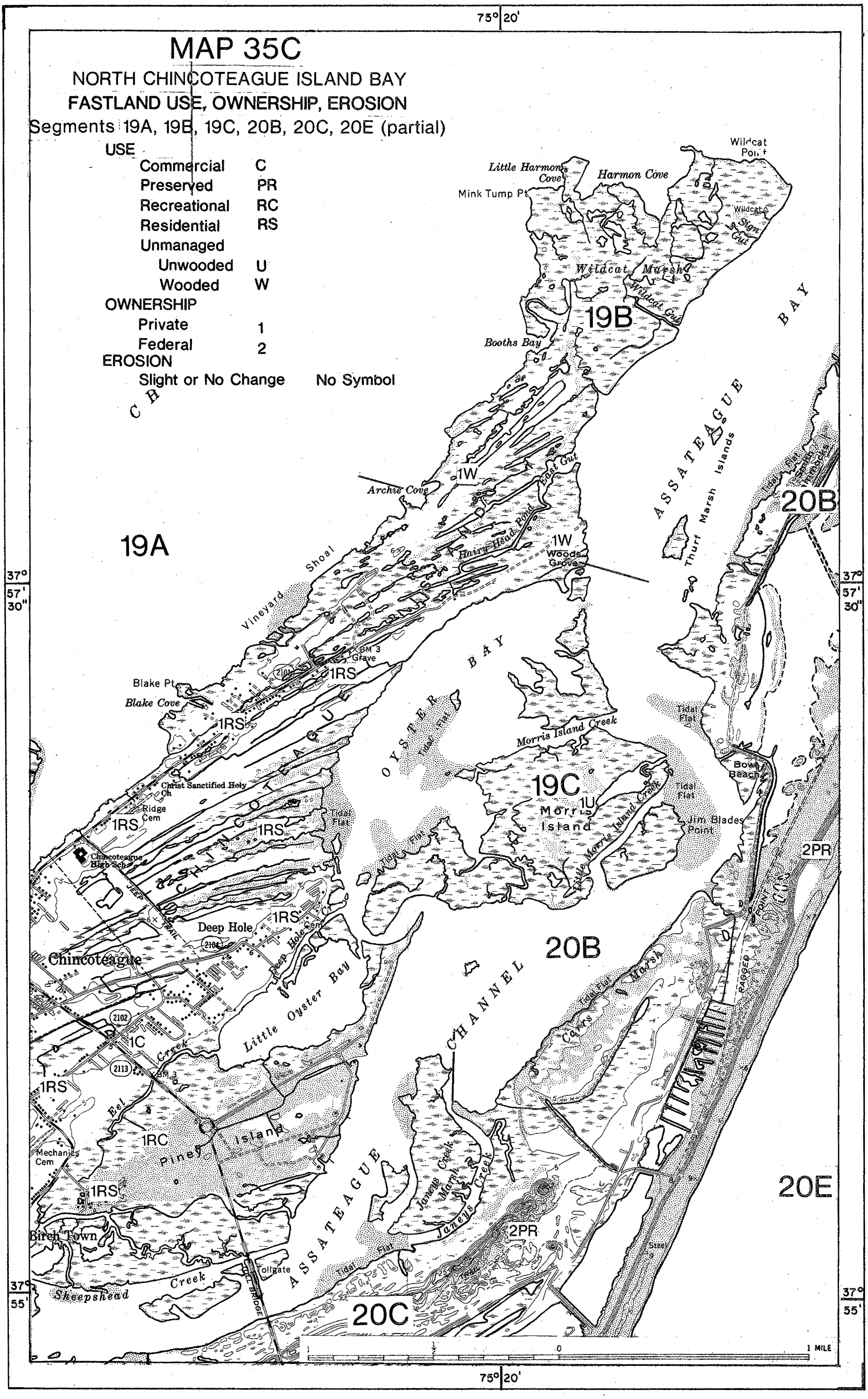
MAP 35C

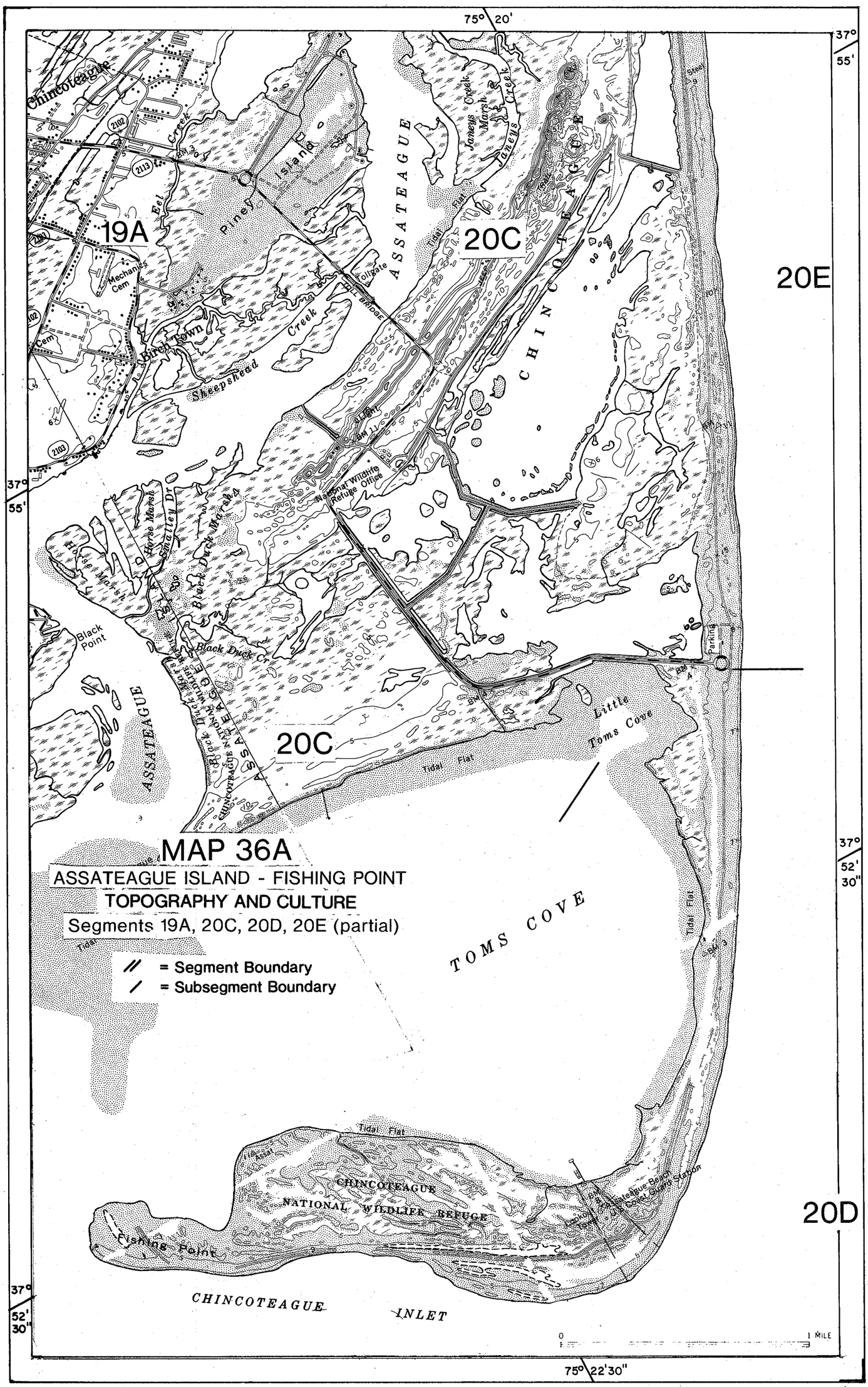
NORTH CHINCOTEAGUE ISLAND BAY

FASTLAND USE, OWNERSHIP, EROSION

Segments 19A, 19B, 19C, 20B, 20C, 20E (partial)

USE		
	Commercial	C
	Preserved	PR
	Recreational	RC
	Residential	RS
	Unmanaged	
	Unwooded	U
	Wooded	W
OWNERSHIP		
	Private	1
	Federal	2
EROSION		
	Slight or No Change	No Symbol





MAP 36A

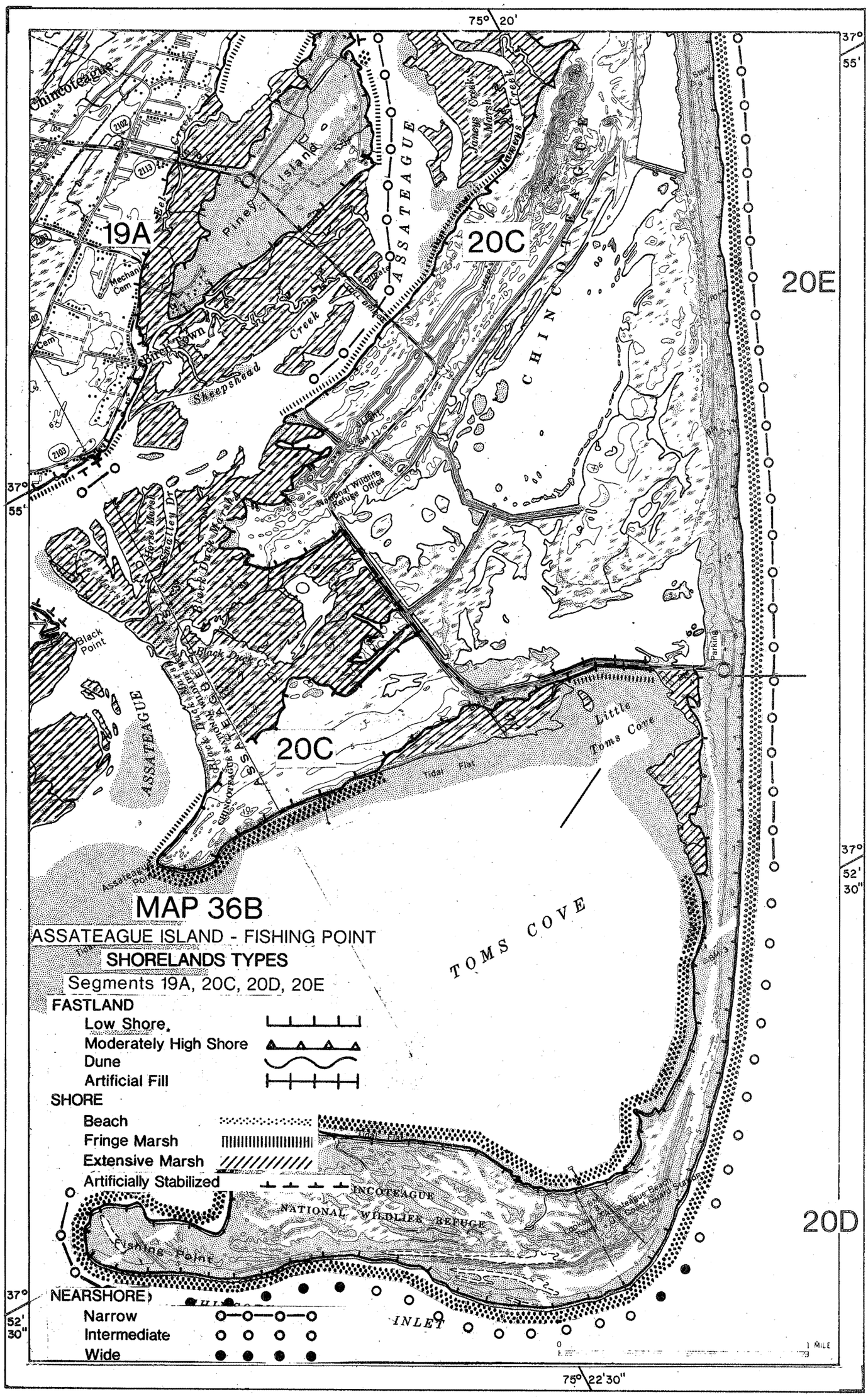
ASSATEAGUE ISLAND - FISHING POINT

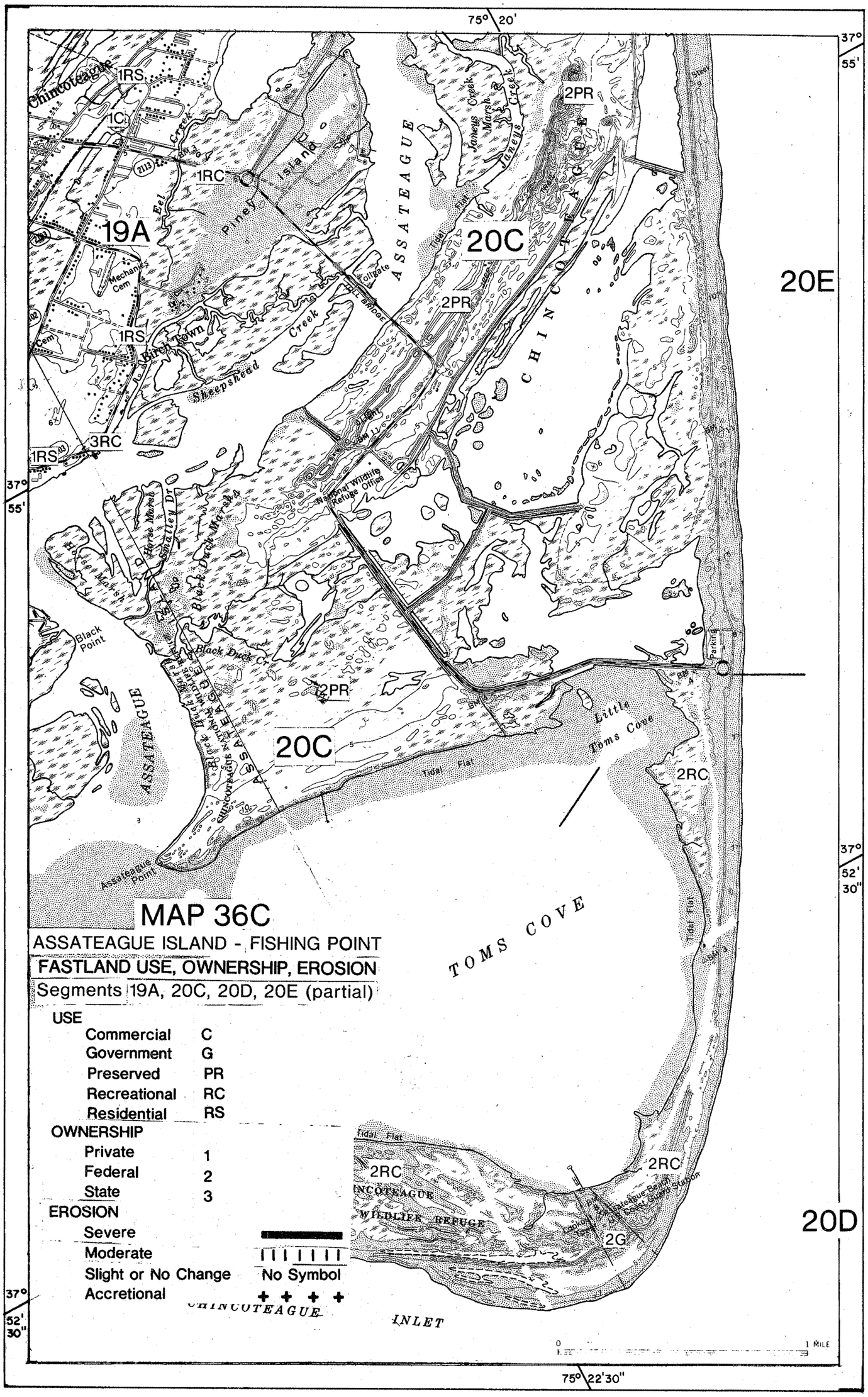
TOPOGRAPHY AND CULTURE

Segments 19A, 20C, 20D, 20E (partial)

// = Segment Boundary

/ = Subsegment Boundary


75° 20'
37° 55'
Chincoteague
Chincoteague Creek
Piney Island
ASSATEAGUE
Jones Creek
Marsh Creek
Cowards
19A
20C
20E
Mechan Cem
Cem
Pine Town
Creek
Sheepshead
CHINCOTEAGUE
Light
Wildlife Refuge Office
Horse Marsh
Bradley Dr
Duck Blind Marsh
Black Point
Black Duck Cove
ASSATEAGUE
Fishing
Little Toms Cove
Tidal Flat
Assateague Point
MAP 36B
ASSATEAGUE ISLAND - FISHING POINT
SHORELANDS TYPES
Segments 19A, 20C, 20D, 20E
FASTLAND
Low Shore
Moderately High Shore
Dune
Artificial Fill
SHORE
Beach
Fringe Marsh
Extensive Marsh
Artificially Stabilized
NEARSHORE
Narrow
Intermediate
Wide
TOMS COVE
INCOTEAGUE
NATIONAL WILDLIFE REFUGE
Fishing Point
INLET
20D
37° 52' 30"
75° 22'30"
0
1 MILE



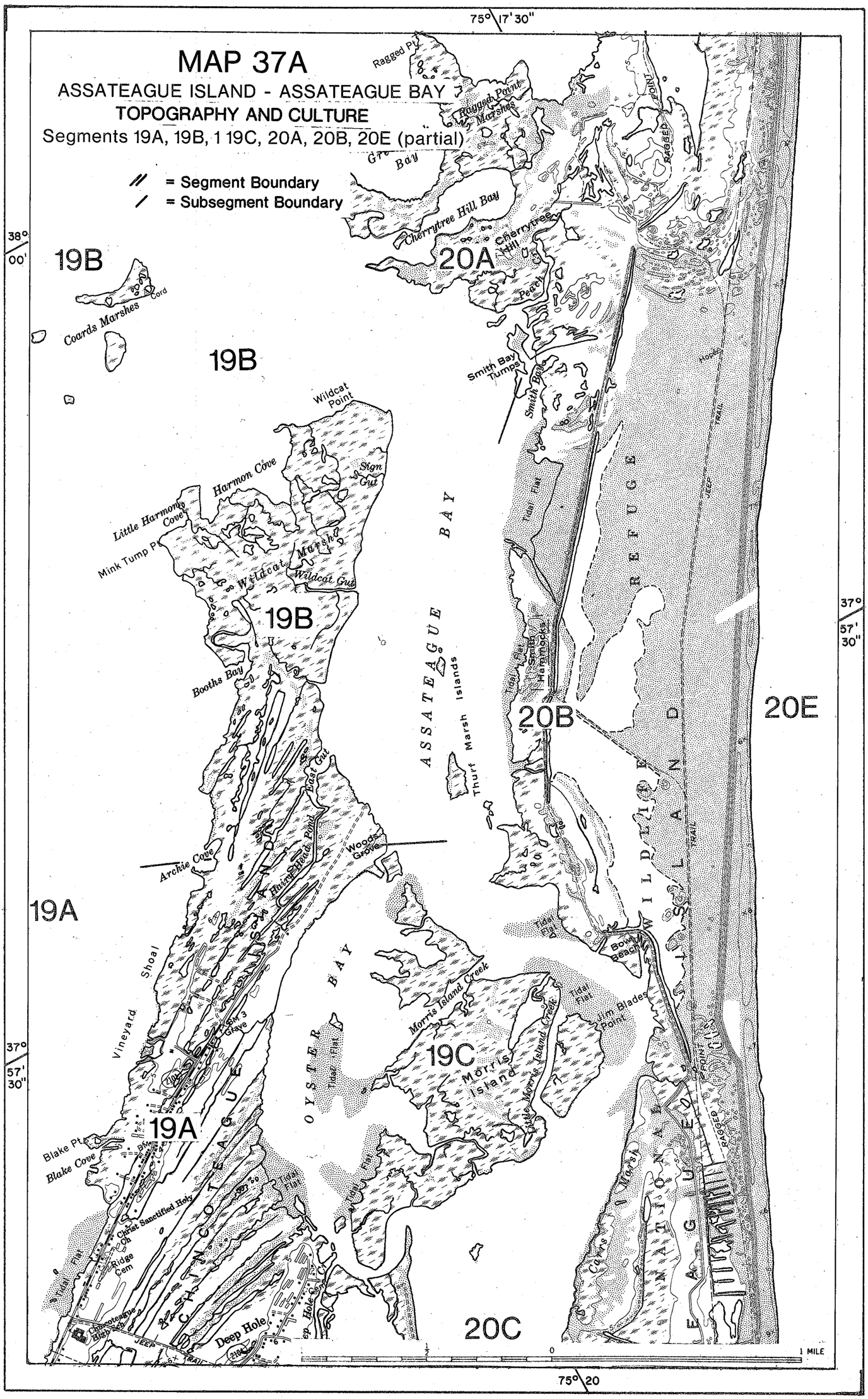
MAP 36C

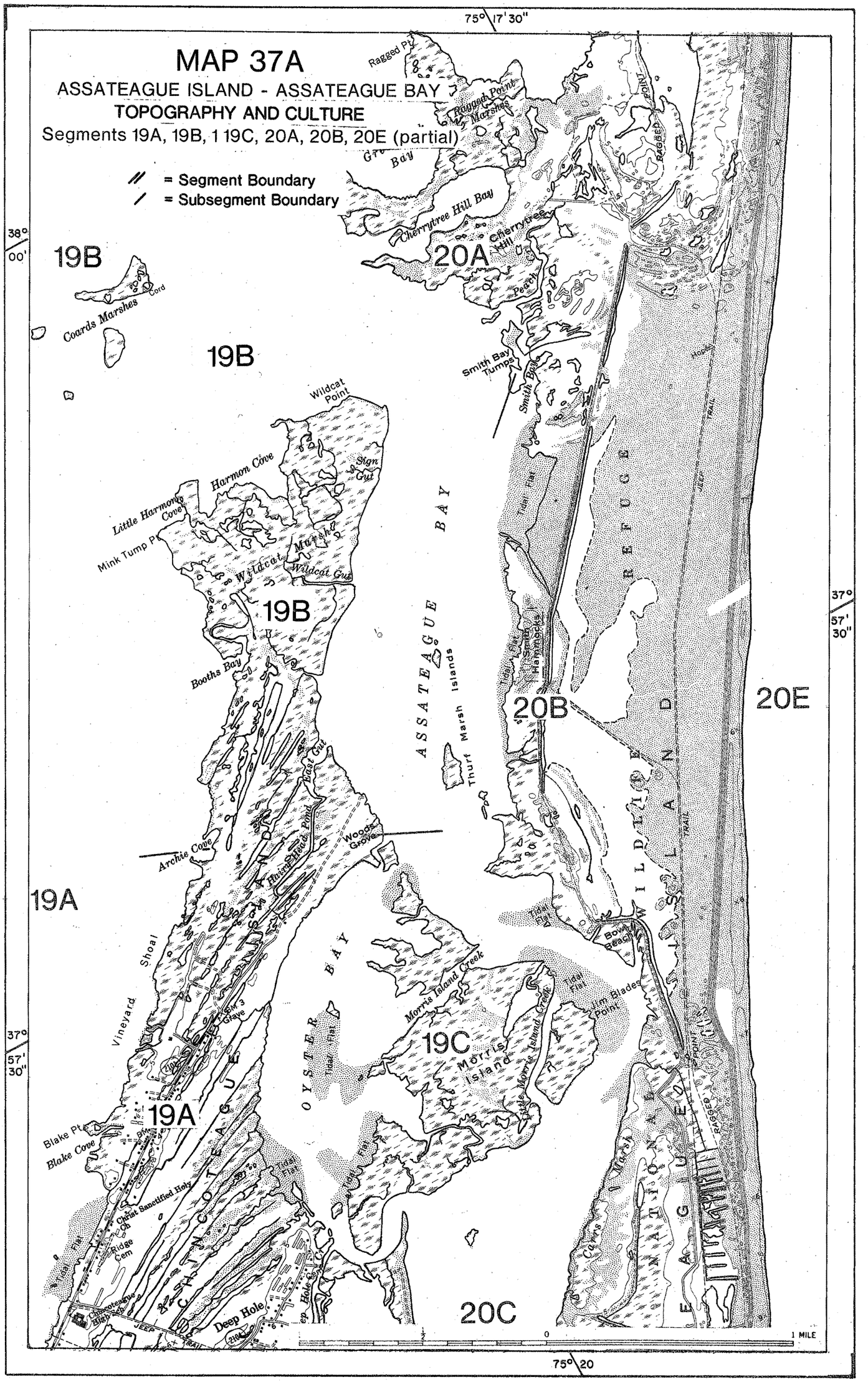
ASSATEAGUE ISLAND - FISHING POINT

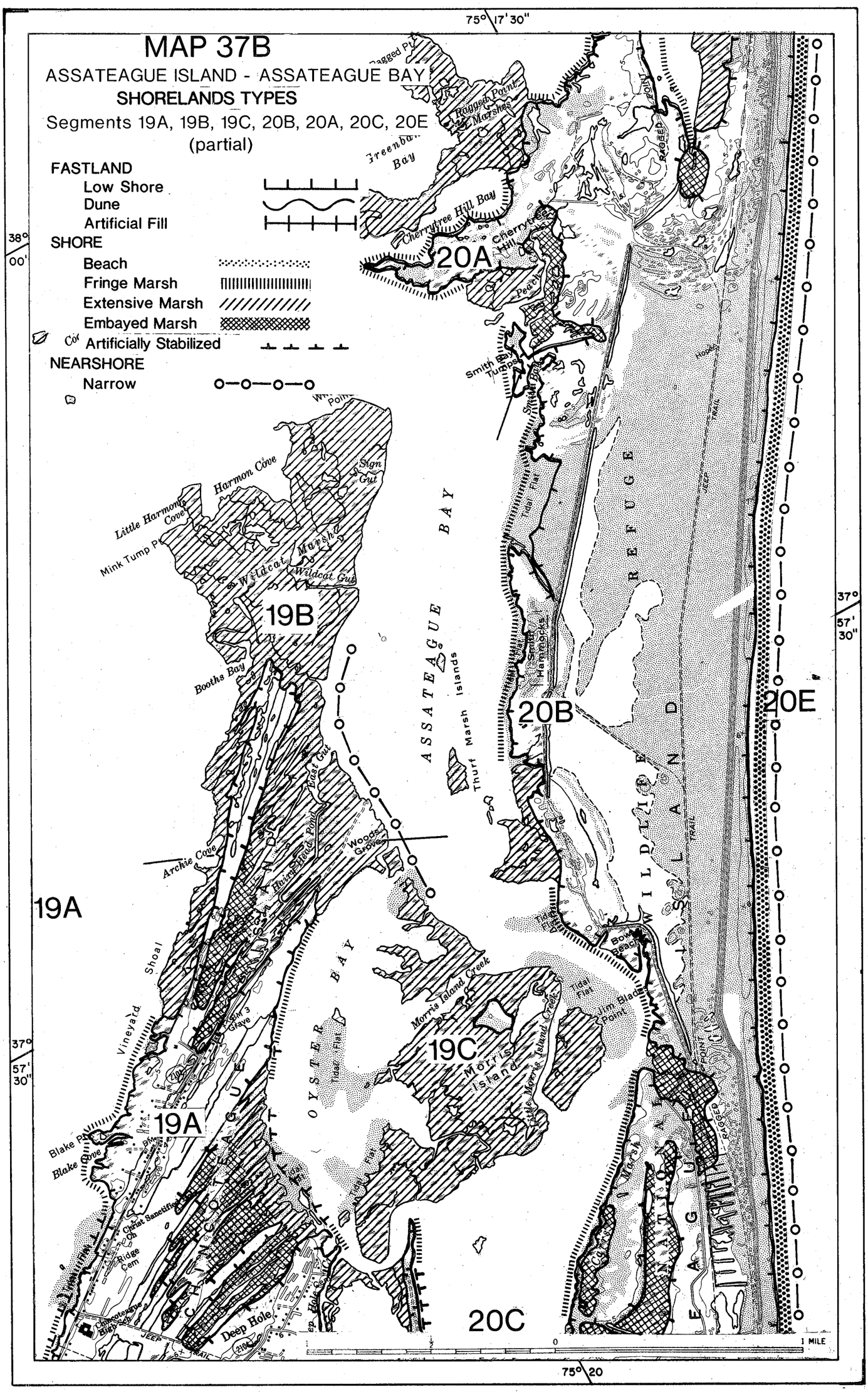
FASTLAND USE, OWNERSHIP, EROSION

Segments 19A, 20C, 20D, 20E (partial)

USE		
	Commercial	C
	Government	G
	Preserved	PR
	Recreational	RC
	Residential	RS
OWNERSHIP		
	Private	1
	Federal	2
	State	3
EROSION		
	Severe	
	Moderate	
	Slight or No Change	No Symbol
	Accretional	+ + + +


MAP 37A
ASSATEAGUE ISLAND - ASSATEAGUE BAY
TOPOGRAPHY AND CULTURE
Segments 19A, 19B, 1 19C, 20A, 20B, 20E (partial)
// = Segment Boundary
/ = Subsegment Boundary
75° 17' 30"
38° 00'
37° 57' 30"
75° 20
19A
19B
19C
20A
20B
20C
20E
ASSATEAGUE BAY
OYSTER BAY
CHINCOTEAGUE BAY
ASSATEAGUE ISLAND NATIONAL SEASHORE
WILDLIFE REFUGE
Ragged Pt
Ragged Point Marshes
Ragged Point
Cherrytree Hill Bay
Cherrytree Hill
Peach
Coards Marshes
Smith Bay Tumps
Smith Bay
Wildcat Point
Harmon Cove
Little Harmon Cove
Mink Tump Pt
Sign Gut
Wildcat Marsh
Wildcat Gut
Booths Bay
Tidal Flat
Thurl Marsh Islands
Woods Grove
Archie Cove
Point Shad Point
Tidal Gut
Vineyard Shoal
Morris Island Creek
Jim Blades Point
Bowl Beach
Blake Pt
Blake Cove
Great Sanctified Holy
Ridge Cem
Deep Hole
Deep Hole Gut
Chincoteague Beach
JEEP TRAIL
HIKING TRAIL
1 MILE


MAP 37A
ASSATEAGUE ISLAND - ASSATEAGUE BAY
TOPOGRAPHY AND CULTURE
Segments 19A, 19B, 1 19C, 20A, 20B, 20E (partial)
// = Segment Boundary
/ = Subsegment Boundary
75° 17' 30"
38° 00'
37° 57' 30"
75° 20
19A
19B
19C
20A
20B
20C
20E
ASSATEAGUE BAY
OYSTER BAY
ASSATEAGUE ISLAND
ASSATEAGUE ISLAND NATIONAL WILDLIFE REFUGE
Ragged Pt
Ragged Point Marshes
Ragged Point
Cherrytree Hill Bay
Cherrytree Hill
Beach
Coards Marshes
Coard
Smith Bay Tumps
Smith Bay
Wildcat Point
Harmon Cove
Sign Cut
Little Harmony Cove
Mink Tump Pt
Wildcat Marshes
Wildcat Gut
Booths Bay
Tidal Flat
Spray Hammocks
Thurf Marsh Islands
Boat Cut
Archie Cove
Marshy Point
Woods Grove
Vineyard Shoal
Morris Island Creek
Tidal Flat
Jim Glades Point
Bowl Beach
Blake Pt
Blake Cove
Christ Sanctified Holy
Ridge Cem
Deep Hole
Hole
Chincoteague Bay
Jeep Trail
Hog Point
Ragged Point
Morris Island
Curtis Marsh
0
1 MILE


MAP 37B
ASSATEAGUE ISLAND - ASSATEAGUE BAY
SHORELANDS TYPES
Segments 19A, 19B, 19C, 20B, 20A, 20C, 20E
(partial)
FASTLAND
Low Shore
Dune
Artificial Fill
SHORE
Beach
Fringe Marsh
Extensive Marsh
Embayed Marsh
Artificially Stabilized
NEARSHORE
Narrow
75° 17' 30"
38° 00'
37° 57' 30"
75° 20
20A
19B
20B
20E
19A
19C
20C
ASSATEAGUE BAY
OYSTER BAY
ASSATEAGUE ISLAND NATIONAL WILDLIFE REFUGE
Harmon Cove
Little Harmons Cove
Mink Tump Point
Wildcat Marsh
Wildcat Gut
Booths Bay
Sign Gut
Cherrytree Hill Bay
Cherrytree Hill
Peach
Smith Bay
Tumps
Ragged Point Marshes
Freeboo... Bay
Thurff Marsh Islands
Archie Cove
Woods Grove
Vineyard Shoal
Morris Island Creek
Tim Blades Point
Deep Hole
Blake Point
Blake Cove
Chincoteague Bay
Ridge Cem
JEEP TRAIL
0
1 MILE

MAP 37C

ASSATEAGUE ISLAND - ASSATEAGUE BAY

FASTLAND USE, OWNERSHIP, EROSION

Segments 19A, 19B, 19C, 20A, 20B, 20E (partial)

USE	
Preserved	PR
Residential	RS
Unmanaged	
Unwooded	U
Wooded	W
OWNERSHIP	
Private	1
Federal	2
EROSION	
Severe	
Slight or No Change	No Symbol

75° 17' 30"

38° 00'

37° 57' 30"

75° 20

0 ½ 1 MILE

Ragged Pt.
Ragged Point Marshes
bank
POINT
RAGGED
20A
Cherrytree Hill Bay
Cherrytree Hill
Peach
Smith Bay Tumps
Smith Bay
Marsh
TRAIL
Harmon Cove
Little Harmon Cove
Mink Tump Pt.
Sign Gut
Wildcat Marsh
Wildcat Gut
19B
Booths Bay
East Gut
1W
Archie Cove
Hurry Head Pond
Woods Grove
19A
Vineyard
Shoal
Tower
Grave
1RS
1U
Blake Pt.
Blake Cove
Christ Sanctified Holy Ch.
Ridge Cem.
Tidal Flat
Chincoteague Elem. Sch.
JEEP TRAIL
Deep Hole
Deep Hole Cem.
OYSTER
BAY
Morris Island Creek
Morris Island
19C
Jim Blades Point
20C
ASSATEAGUE
ISLAND
Thurf Marsh
Islands
Tidal Flat
Smith Marshes
20B
2PR
20E
WILDLIFE REFUGE
Bowl Beach
Cows
Marsh
NATIONAL SEASHORE
RIGGER POINT TRAIL

MAP 38A

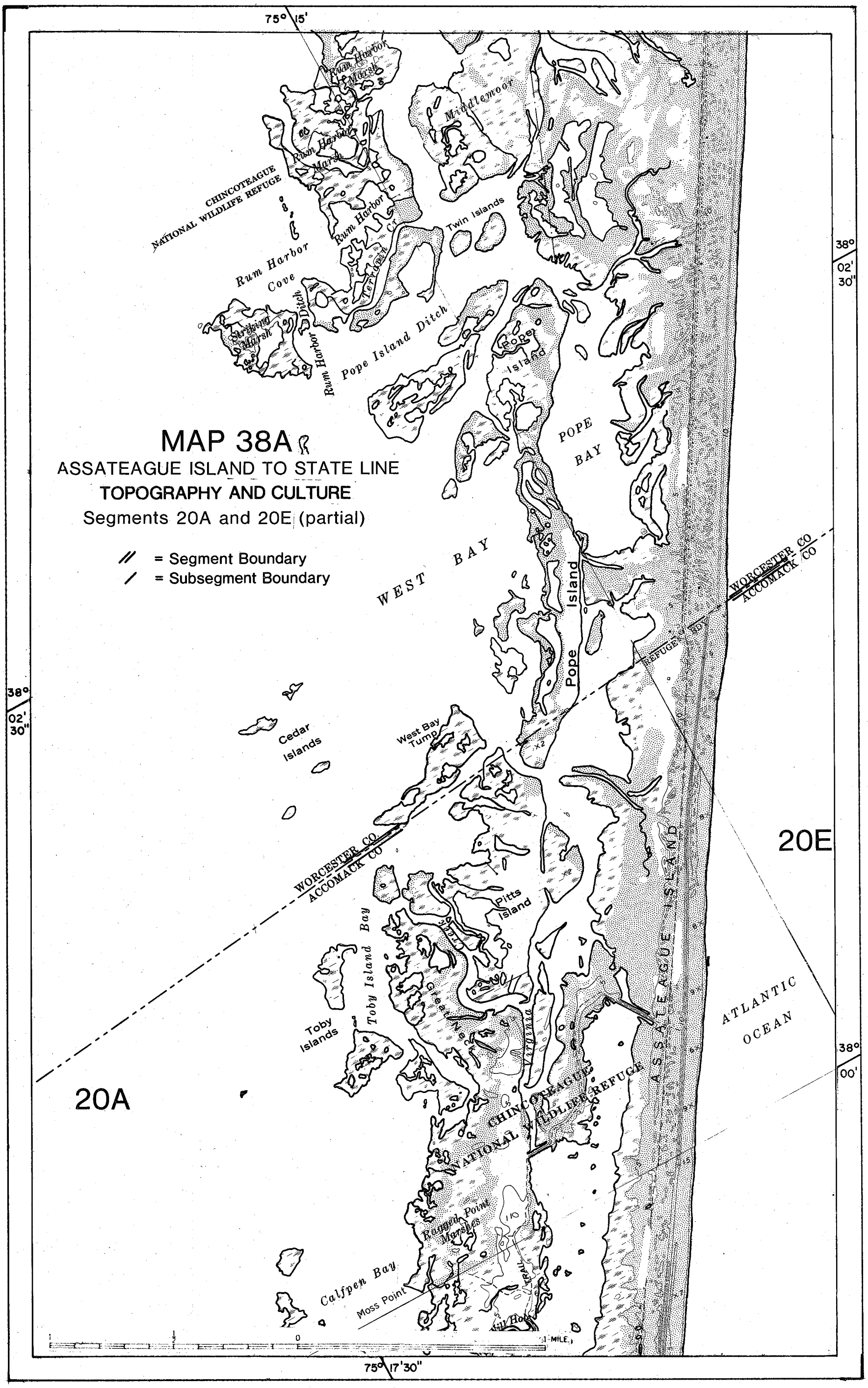
ASSATEAGUE ISLAND TO STATE LINE

TOPOGRAPHY AND CULTURE

Segments 20A and 20E (partial)

// = Segment Boundary

/ = Subsegment Boundary



MAP 38B

ASSATEAGUE ISLAND TO STATE LINE

SHORELANDS TYPES

Segments 20A and 20E(partial)

FASTLAND

- Low Shore
- Dune
- Artificial Fill

SHORE

- Beach
- Fringe Marsh
- Extensive Marsh

NEARSHORE

- Narrow

75° 15'

38° 02' 30"

38° 00'

75° 17' 30"

20A

20E

CHINCOTEAGUE NATIONAL WILDLIFE REFUGE

Rum Harbor Marsh

Rum Harbor

Middlemoor

Rum Harbor Cove

Rum Harbor Ditch

Twin Islands

Pope Island Ditch

Pope Island

POPE BAY

WEST BAY

WORCESTER CO
ACCOMACK CO

West Bay Tump

Cedar Islands

Pitts Island

Toby Island Bay

Toby Islands

ASSATEAGUE ISLAND

ATLANTIC OCEAN

Fringed Point Marshes

Calfpen Bay

Moss Point

1 0 1 MILE

MAP 38C

ASSATEAGUE ISLAND TO STATE LINE

FASTLAND USE, OWNERSHIP, EROSION

Segments 20A and 20E (partial)

USE	
Preserved	PR
OWNERSHIP	
Federal	2
EROSION	
Slight or No Change	No Symbol