Shoreline Situation Report Northampton County, Virginia

William D. Athearn
Virginia Institute of Marine Science

Gary F. Anderson
Virginia Institute of Marine Science

Robert J. Byrne
Virginia Institute of Marine Science

Carl H. Hobbs III
Virginia Institute of Marine Science

John M. Zeigler
Virginia Institute of Marine Science

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CHAPTER 1
Introduction
CHAPTER 2
Approach Used and Elements Considered
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 trans­
porter 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 fast­
land is relatively stable and is the site of most
material development or construction. The physio­
graphic 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 fastlands 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 re­
ference 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 clas­
sifications were chosen following a simple statistical
study. The distance to the 12-foot underwater con­
tour (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. Al­
though the distributions were non-normal, they were
generally comparable, allowing the data for the en­
tire combined system to determine the class limits.

The calculated mean was 919 yards with a stan­
dard 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 near­
shore zone is one 0-400 yards in width, intermediate
400-1,400, and wide greater than 1,400.

The following definitions have no legal signi­
ficance 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 1A
An illustration of the definition of the three components
of the shorelands.

Figure 1B
A generalized illustration of the three different marsh types.
(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 noncritical. 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 shoreline 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 shows 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.
CHAPTER 3
Present Shorelands Situation
3.2 SHORE EROSION PROCESSES AND PATTERNS; SHORE DEFENSES

The magnitude of shore erosion in Northampton County must be classed as severe. Where buildings and other structures are endangered, the situation is critical. Map 1B is a summary of the erosion situation. As the erosion characteristics of the Chesapeake Bay shores and the 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 dominate 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 Northampton 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. The winds and the low barometric pressure along the ocean coastline have an additional, indirect effect on the Bay System erosion patterns during the storms by forcing 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 is 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. In this case the eastern shore of the Bay is exposed to intense wave action. In some cases this occurs before the extra water in the Bay has had sufficient time to drain out of the Bay resulting again in the wave activity being concentrated above the usual beach level. These effects of storms are, of course, further enhanced 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 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 up-drift 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 up-drift is stopped for one reason or another the buffer effect is reduced and erosion will ensue.

Much of the sand drifted along the Virginia coastline ultimately is 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 ft./yr. However, yearly variations of 0.15 ft./yr. 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 physica processes of the coastline merits reiteration: beaches are natural land forms which serve to absorb inci-
A Tankards Beach Groin System
B Tankards Beach May 8, 1973
C Smith Beach Groin System
D Railroad Tie Groins, Smith Beach
E Silver Beach
F Silver Beach Displaced Well
should be used in conjunction with riprap or bulkhead if the maintenance of a beach is desired along with bluff protection. If the groins are successful in trapping sand, the beach thus formed, protects the riprap or bulkhead face.

Although the planning of shore erosion defenses for any particular segment of the Bay shoreline of Northampton County requires detailed evaluation, it is possible to recommend certain generalized guidelines:

a) In those areas experiencing rapid bluff recession and where there is limited up-drift sand supply, the application of groins alone should be discouraged.

b) If bluff stabilization is the main objective, properly designed bulkheading or stone riprap should be used. If possible these installations should be augmented with a groin system to establish a beach for frontal protection.

c) If possible the individual groins in a groin system should be placed in a time-sequential manner with the most down-drift groin being the first installed. In those cases where groins alone are being utilized, this procedure will reduce the likelihood of flanking. Furthermore, the observed trapping characteristics will assist in the determination of the spacing between groins.

d) Where possible, groin systems should be artificially filled with sand in order to establish sand by-passing to the down-drift shoreline as soon as possible.

Finally, it must be emphasized that installation of shore defenses in one location generally has an impact on the adjacent down-drift shoreline. The impact can be both direct and indirect. In the case of bluff stabilization by bulkheads or riprap, the act of stabilization removes a source of sand which normally would pass to down-drift beaches. The installation of groin fields is a more aggressive action with a correspondingly greater impact on down-drift beaches as it prevents by-passing of sand until the system is filled.

In all cases shore erosion defenses should be planned under the guidance of persons trained or experienced in coastal processes.

3.22 Ocean shoreline. The ocean shoreline of Northampton County is characterized by a series of six, low-lying barrier islands. The inlets which separate the islands flush the interior marsh and lagoon complexes. For the greater part, the islands are simple, low-lying, marsh segments with backshore dunes and an ocean-side veneer of sand. As the littoral drift is relatively small, the situation is one of pronounced erosion. However, local dynamics related to the deep tidal inlets cause accretion on the northern ends of Hog and Cobb 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 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 breached the islands, possibly causing new inlets to form.

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. The ocean side erosion rates on an island by island basis, are:

- Hog Island: South end, erosion at 18 ft./yr.
- Cobb Island 
- Wreck Island: Erosion at 34 ft./yr.
- Ship Shoal Island: Irregular, quasi-stable
- Myrtle Island: Erosion at 19 ft./yr.
- Smith Island: Erosion at 23 ft./yr.

These rates were determined by comparison of the shoreline positions in 1852 and 1962. 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 dominantly southerly littoral drift.

The consequences of these facts is an eroding shoreline.

There have been no attempts at shoreline stabilization of the barrier islands with the exception of isolated, no longer active instances to enhance the growth of backshore dunes on Hog Island. Any suggestions of effective shoreline stabilizations procedures must be predicted on the particular management goals. If the goal were 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 fringes 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 Shore use potential and unique features.

3.31 Chesapeake Bay shore. The shorelands of the Bay shore offer many attractive sites for residential development and for private and public recreational facilities. The most outstanding area for recreational potential is the four mile reach which includes Kiptopeke Beach, Butler's Bluff and the dunes north of Pond Drain (Subsegments 1C, 1D, 1E respectively). Although the old ferry pier at Kiptopeke is in rather poor repair, the pier and the surrounding wide beach areas have the potential for a major recreational area including bathing, camping, fishing, sailing, water skiing, and for a limited marina. Land access is very good and there is ample room for supporting amenities. The Butler's Bluff section also offers outstanding potential with scenic views from or to the raw bluff which ranges in height from 20 to 55 feet.

The beach is rather narrow but widening could be achieved without technical difficulty. Widening the beach would also reduce erosion of the bluff. The Pond Drain section, with a wide, stable beach, also offers the full range of normal beach activities. The highlight in this section is the relict sand dune system, rising as much as 50 feet above sea level. The beach sand in the Kiptopeke - Pond Drain reach is of high quality for sun-bathing and swimming.

Another, more extensive sand dune system is located near Custis Pond (Subsegment 40). This system and that at Pond Drain are unique features which should be preserved. The Custis Pond site is also very favorably suited for development as a shore zone recreational area. Access to the dune area should be severely limited in order to maintain the dunes in their natural state.

Plate 1 Kiptopeke Ferry Pier
As mentioned earlier, there are many sites suitable for residential development provided the water and soils are satisfactory. However, in those areas where there is a significant erosion problem, a coordinated program for erosion prevention and beach enhancement should be part of the development projects.

3.32 Ocean shore. The fact that the barrier islands are very low in elevation and are subject to extreme erosion and tidal flooding dictates that they should not be considered for commercial recreational or residential development. Their present status as a preserved area should be continued. Limited access areas should be established on some of the islands for day trip usage of the beach for swimming, surf-fishing, and bird watching.

As the barrier islands of Virginia now represent the only remaining undeveloped barrier system between New York and Cape Hatteras it may be anticipated that this area will become increasingly attractive to the public. Thus, it is reasonable to expect an increasing demand for tourist facilities along the interior shore of the marsh-lagoon-barrier island complex.
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Table 2 A SHORELINE SITUATION REPORT, NORTHAMPTON COUNTY

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>SHORELANDS TYPE</th>
<th>SHORELANDS USE</th>
<th>OWNERSHIP</th>
<th>WATER QUALITY</th>
<th>FLOOD HAZARD</th>
<th>EROSION SITUATION</th>
<th>POTENTIAL USE ENHANCEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>FISHERMAN'S ISLAND</td>
<td>Low shore with dunes.</td>
<td>Shore: Beach recreation</td>
<td>Federal</td>
<td>High, non-critical</td>
<td>Severe erosion, 25-40 ft/yr at west, not critical now, but needs grading; accretion of 15-30 ft/yr at south, erosion at north; splits at east corn and go.</td>
<td>Beach areas might be made available for shore recreation without undue interference to the refuge function of the interior of the island.</td>
</tr>
<tr>
<td>1</td>
<td>KITTOOPSE</td>
<td>Low shore with dunes - 56% (1E, F, H); low shore - 14% (1A); medium low shore with bluff - 35% (1A, B, C); median high shore with bluff - 15% (1D).</td>
<td>Shore: Limited beach recreation; nearshore: boating, shellfishing, sport fishing.</td>
<td>Private 95%</td>
<td>High, non-critical</td>
<td>Erosion ranges from none to severe, up to 5 ft/yr, averaging 2 ft/yr. Greatest loss is in 1F and 1G. Accretion (20 ft/yr) in 1C.</td>
<td>Moderate. In addition to the already wide beach at the ferry pier (1C) adjacent beaches could be widened with a suitable groin system for recreational purposes. The dune area (1D) is unique and should be preserved in its natural state as a public nature area.</td>
</tr>
<tr>
<td>3</td>
<td>CAPE CHARLES</td>
<td>Low shore with some dunes (3B); low shore with bluff; dunes lower part of Kings Creek (3F).</td>
<td>Nearshore: Limited beach recreation; sand spit-11% (BA).</td>
<td>Private 95%</td>
<td>Medium</td>
<td>Maximum erosion 3 ft/yr (3B); minor erosion in 3D and 3E. Bulkhead and gravel protect most of 3D, Jetties hold sand at harbor entrance.</td>
<td>Moderate. At modest expense 3B, 3D &amp; 3E might be improved for beach recreation. Care should be exercised to avoid pollution of Kings Creek (3F) by uncontrolled increase of marine facilities.</td>
</tr>
<tr>
<td>4</td>
<td>SAVAGE MECK</td>
<td>Sand spit with low dunes-45% (4A); low shore with bluff-95% (40).</td>
<td>Nearshore: Boating, shellfishing, sport fishing.</td>
<td>Private 95%</td>
<td>Low</td>
<td>Severe erosion, critical in 4D, rate varies between 7 and 20 ft/yr, with about 60 houses within 100 feet of bluff edge. Erosion protective structures are mostly ineffective, in fact, detrimental. Severe erosion, non-critical, north 1/3 of 4C. No erosion, 4B and in south 2/3 of 4C. Potentially severe erosion, non-critical in 4A.</td>
<td>High in 4C. The high dunes are unique and warrant preservation for public study and enjoyment. The beach in the area could be developed for public recreation, with effective erosion control. Additional bluff areas in 4C could be used for residential area.</td>
</tr>
<tr>
<td>8</td>
<td>CHURCH MECK</td>
<td>Low shore with some bluff-49% (8B); low shore with bluff-95% (8A); looped spit and sand bluff-95% (8D); fringes marsh-20% (8B, 8).</td>
<td>Nearshore: Sport fishing, shellfishing; sand spit-11% (BA).</td>
<td>Private 95%</td>
<td>Low</td>
<td>Moderate erosion, 2-3 ft/yr, non-critical in 8B, 8C, 8E. Some accretion also in 8B.</td>
<td>The spit areas should be left for recreation or nature study. The bay shore bluffs, if adequately protected from erosion, and the bluffs surrounding Wanaannoche Creek (8D), are desirable residential areas.</td>
</tr>
<tr>
<td>10</td>
<td>OCCOQUAN MECK</td>
<td>Low shore with bluff-56% (10A, B); low shore with bluff-95% (10C, D); shoreline: flat, grassy, sand, with multiple parallel bars.</td>
<td>Nearshore: Sport fishing, shellfishing; sand spit-11% (BA).</td>
<td>Private 95%</td>
<td>High, non-critical</td>
<td>Severe erosion, 5-6 ft/yr over most of the segment; critical in 10B and somewhat in 10C and 10D. Shore erosion defense measures should be unified for best results.</td>
<td>Moderate potential is probably in seasonal residential development, provided adequate erosion protection is devised. A second potential exists in the possibility of developing public beach and park facilities near Sparrow Point (10D).</td>
</tr>
<tr>
<td>SECTOR</td>
<td>SHORELANDS TYPE</td>
<td>SHORELANDS USE</td>
<td>OWNERSHIP</td>
<td>NAVIGABILITY</td>
<td>WATER QUALITY</td>
<td>FLOOD HAZARD</td>
<td>EROSION SITUATION</td>
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</tr>
<tr>
<td>11 OCCOHANNOCK INLET</td>
<td>Fastland: Low shore. Shore: Fringe and embayed marsh. 90% narrow sand beach-10%. Creek: Submerged meanders, dendritic branches, few shoals.</td>
<td>Fastland: Agricultural-55%; residential and recreational-25%. Shore: Incidental to boat use. Creek: Shellfishing, waterfowl hunting, fishing.</td>
<td>Private</td>
<td>Fair. An unmarked channel, 7 ft deep through inlet, extends with 4 ft depths to vicinity of Eyrehall Creek.</td>
<td>Satisfactory</td>
<td>High in lower half of inlet, non-critical; medium in upper half.</td>
<td>Shoreline is generally stable, except in vicinity of entrance (see Gt. Menor Pk., Goose Neck) and in the vicinity of Cherry Pt. (reef in need of repair).</td>
</tr>
<tr>
<td>9 NASSAWAÐIX CREEK</td>
<td>Fastland: Low shore with bluff. Shore: Fringe and embayed marsh. Creek: Submerged meanders, dendritic branches, shoals.</td>
<td>Fastland: Agricultural-93%; commercial and residential-7%. Shore: Incidental to boat use. Creek: Shellfishing, fishing, hunting and boating.</td>
<td>Private</td>
<td>Poor. Channel narrow, winding, many shoals, unmarked except at entrance.</td>
<td>Satisfactory</td>
<td>High in lower creek, non-critical; medium elsewhere in creek; low to bordering fastland.</td>
<td>Shoreline is generally stable. A small amount of erosion has occurred at entrance to creek, partially stabilized by bulkheads.</td>
</tr>
<tr>
<td>SEGMENT</td>
<td>SHORELANDS TYPE</td>
<td>SHORELANDS USE</td>
<td>OWNERSHIP</td>
<td>WATER QUALITY</td>
<td>FLOOD HAZARD</td>
<td>EROSION SITUATION</td>
<td>POTENTIAL USE ENHANCEMENT</td>
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<tr>
<td>MILL CREEK</td>
<td>Low shore</td>
<td>Shawis marsh-97%; medium width sand beach-3%</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marsh, non-critical; medium at the Air Force Station; could be critical with a major flood.</td>
<td>No erosion problems observed.</td>
<td>Low; there are no beaches of consequence; the shellfishing industry has failed; low-lying land is not desirable for homesite development at present.</td>
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<td>6.2 miles</td>
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<tr>
<td>DUNTON COVE</td>
<td>Low shore</td>
<td>Shawis marsh-93%; agricultural-5%; military reservation-1%; residential-commercial-5%; agricultural-4%; low shore.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marsh, non-critical; medium at the Air Force Station; could be critical with a major flood.</td>
<td>No erosion problems observed.</td>
<td>Low; low-lying fastland subject to flooding.</td>
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<tr>
<td>4.1 miles</td>
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<tr>
<td>MACHIPONGO RIVER</td>
<td>Low shore</td>
<td>Framed marsh-96%; fenced marsh-15%; scattered embayed marsh-3%; embayed marsh-9%; agricultural-5%; commercial-residential-14%.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marshes, non-critical; high to medium, coastal, at Oyster in major flood, low elsewhere.</td>
<td>No erosion problems observed.</td>
<td>Low; some potential may exist for increasing dormant local business at Oyster. The marshes should be protected against any artificial development.</td>
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<td>10 miles</td>
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<tr>
<td>HOLT NECK</td>
<td>Low shore</td>
<td>Shawis marsh-93%; embayed marsh-9%; embayed marsh-9%; agricultural-5%; medical-15%; residential-commercial-10%; agricultural-4%; low shore.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marshes, non-critical; low for the fastland.</td>
<td>No erosion problems observed.</td>
<td>Low; there appears to be no incentive at this time to develop the fastland area further.</td>
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<tr>
<td>4.4 miles</td>
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<td></td>
</tr>
<tr>
<td>BAY</td>
<td>Low shore</td>
<td>Shawis marsh-97%; embayed marsh-3%; agricultural-4%; low shore.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marshes, non-critical; medium to marsh islands and low fastland, could be serious in populated areas during high floods; low in upper fastland.</td>
<td>No erosion problems observed.</td>
<td>Low; little present potential for development in the fastland. There are no beaches, and little to attract transient yachtsmen.</td>
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<td>12</td>
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<tr>
<td>RAMSHORN BAY</td>
<td>Low shore</td>
<td>Shawis marsh-93%; embayed marsh-9%; embayed marsh-9%; agricultural-5%; low shore.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marshes, non-critical; medium to marsh islands and low fastland, could be serious in populated areas during high floods; low in upper fastland.</td>
<td>No erosion problems observed.</td>
<td>Low; there appears to be no incentive at this time to develop the fastland area further.</td>
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<tr>
<td>5.1 miles</td>
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</tr>
<tr>
<td>WISE POINT</td>
<td>Low shore</td>
<td>Shawis marsh-93%; embayed marsh-9%; agricultural-4%; low shore.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marshes, non-critical; low for the fastland.</td>
<td>No erosion problems observed.</td>
<td>Low; there appears to be no incentive at this time to develop the fastland area further.</td>
</tr>
<tr>
<td>13</td>
<td></td>
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</tr>
<tr>
<td>WISE POINT</td>
<td>Low shore</td>
<td>Shawis marsh-93%; embayed marsh-9%; embayed marsh-9%; agricultural-5%; low shore.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marshes, non-critical; medium to marsh islands and low fastland, could be serious in populated areas during high floods; low in upper fastland.</td>
<td>No erosion problems observed.</td>
<td>Low; there appears to be no incentive at this time to develop the fastland area further.</td>
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<td>14</td>
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</tr>
<tr>
<td>WISE POINT</td>
<td>Low shore</td>
<td>Shawis marsh-93%; embayed marsh-9%; embayed marsh-9%; agricultural-5%; low shore.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marshes, non-critical; medium to marsh islands and low fastland, could be serious in populated areas during high floods; low in upper fastland.</td>
<td>No erosion problems observed.</td>
<td>Low; there appears to be no incentive at this time to develop the fastland area further.</td>
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<tr>
<td>15</td>
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</tr>
<tr>
<td>WISE POINT</td>
<td>Low shore</td>
<td>Shawis marsh-93%; embayed marsh-9%; embayed marsh-9%; agricultural-5%; low shore.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marshes, non-critical; low for the fastland.</td>
<td>No erosion problems observed.</td>
<td>Low; there appears to be no incentive at this time to develop the fastland area further.</td>
</tr>
<tr>
<td>16</td>
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</tr>
<tr>
<td>WISE POINT</td>
<td>Low shore</td>
<td>Shawis marsh-93%; embayed marsh-9%; embayed marsh-9%; agricultural-5%; low shore.</td>
<td>Private</td>
<td>Satisfactory</td>
<td>High over the marshes, non-critical; low for the fastland.</td>
<td>No erosion problems observed.</td>
<td>Low; there appears to be no incentive at this time to develop the fastland area further.</td>
</tr>
<tr>
<td>17</td>
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</table>
### Table 3. Shore Protective Structures, Northampton County, Virginia

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>SHORELINE</th>
<th>LENGTH</th>
<th>EFFECTIVENESS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FISHERMEN ISLAND</strong></td>
<td>GROIN</td>
<td>PLANK</td>
<td>LOW SHORE</td>
<td>--</td>
<td>FAIR</td>
</tr>
<tr>
<td></td>
<td>BULKHEAD</td>
<td>DEBRIS</td>
<td>LOW SHORE</td>
<td>500'</td>
<td>GOOD</td>
</tr>
<tr>
<td><strong>WISE POINT</strong></td>
<td>GROIN</td>
<td>PLANK</td>
<td>LOW SHORE</td>
<td>8500'</td>
<td>GOOD</td>
</tr>
<tr>
<td></td>
<td>BULKHEAD</td>
<td>DEBRIS</td>
<td>LOW SHORE</td>
<td>200'</td>
<td>GOOD</td>
</tr>
<tr>
<td><strong>LATIMER RULEY</strong></td>
<td>GROIN</td>
<td>Rumble</td>
<td>MODERATELY</td>
<td>25'</td>
<td>MARGINAL</td>
</tr>
<tr>
<td></td>
<td>BULKHEAD</td>
<td>DEBRIS</td>
<td>LOW SHORE</td>
<td>200'</td>
<td>FAIR</td>
</tr>
<tr>
<td><strong>KIPTOPEKE BEACH</strong></td>
<td>GROIN</td>
<td>SOLID FIER</td>
<td>LOW SHORE</td>
<td>5200'</td>
<td>FAIR</td>
</tr>
<tr>
<td><strong>SOUTH OF CAPE CHARLES HARBOR</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>LOW SHORE</td>
<td>20-30'</td>
<td>POOR</td>
</tr>
<tr>
<td><strong>CAPE CHARLES HARBOR</strong></td>
<td>GROIN</td>
<td>GROIN</td>
<td>HARBOR</td>
<td>200'</td>
<td>GOOD</td>
</tr>
<tr>
<td><strong>RIVER MACHIPONGO</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>4500'</td>
<td>GOOD</td>
</tr>
<tr>
<td><strong>MOCKHORN BAY</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>1200'</td>
<td>GOOD</td>
</tr>
<tr>
<td><strong>NEWPORT OF DOWNSHINGS BEACH</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>2300'</td>
<td>GOOD</td>
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<tr>
<td><strong>BATTLE POINT</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>150'</td>
<td>MDISTILLIOUS</td>
</tr>
<tr>
<td><strong>MILL CREEK</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>200'</td>
<td>GOOD</td>
</tr>
<tr>
<td><strong>CHERRYSTONE DIGIT</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>500'</td>
<td>FAIR</td>
</tr>
<tr>
<td><strong>DENTON COVE</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>100'</td>
<td>NEW</td>
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<tr>
<td><strong>MACKENZIE RIVER</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>150'</td>
<td>POOR</td>
</tr>
<tr>
<td><strong>SMITH BEACH</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>100'</td>
<td>GOOD TO FAIR</td>
</tr>
<tr>
<td><strong>OLD TOWN BEACH</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>200'</td>
<td>GOOD</td>
</tr>
<tr>
<td><strong>SILVER BEACH</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>500'</td>
<td>INEFFECTIVE</td>
</tr>
<tr>
<td><strong>SILVER BEACH</strong></td>
<td>BULKHEAD</td>
<td>DEBRIS</td>
<td>HARBOR</td>
<td>500'</td>
<td>INEFFECTIVE</td>
</tr>
<tr>
<td><strong>BULKHEAD</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>500'</td>
<td>INEFFECTIVE</td>
</tr>
<tr>
<td><strong>BULKHEAD</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>500'</td>
<td>INEFFECTIVE</td>
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<td><strong>BULKHEAD</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>500'</td>
<td>INEFFECTIVE</td>
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<td><strong>BULKHEAD</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>500'</td>
<td>INEFFECTIVE</td>
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<tr>
<td><strong>BULKHEAD</strong></td>
<td>GROIN</td>
<td>GROINS</td>
<td>HARBOR</td>
<td>500'</td>
<td>INEFFECTIVE</td>
</tr>
</tbody>
</table>

**Notes:**
- The GROINS are trapping a limited quantity of sand; however, the beach is quite narrow. A more useful and pleasing shorefront might be created by extending and reorienting some of the GROINS and filling the beach.
- The GROINS are too low and probably too short to be effective. Flanking would increase the effectiveness. Notching is more pronounced on south side of GROIN.
- The northern groin is working well and is filling in, the southern groin is too close to be effective and is being flanked.
- The groins are trapping sediment, but are too close together. Too short, and too low; they are not particularly effective in protecting the area.
- The groins are trapping sediment, but are too close together, too short, and too low; they are not particularly effective in protecting the area.
- The groins are protecting the residential section of Cape Charles.
- The groins are trapping sediment, but are too close together. Too short, and too low; they are not particularly effective in protecting the area.
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- The groins are trapping sediment, but are too close together. Too short, and too low; they are not particularly effective in protecting the area.
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- The groins are trapping sediment, but are too close together. Too short, and too low; they are not particularly effective in protecting the area.
- The groins are trapping sediment, but are too close together. Too short, and too low; they are not particularly effective in protecting the area.
### TABLE 4

**SHORELINE SITUATION REPORT**  
**NORTHAMPTON COUNTY, VIRGINIA**  

**WETLAND ACREAGE**

<table>
<thead>
<tr>
<th>Segment and Subsegment</th>
<th>Fringe Marsh</th>
<th>Extensive Marsh</th>
<th>Embayed Marsh</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH0: Fishermans Island</td>
<td>0</td>
<td>429</td>
<td>0</td>
<td>429</td>
</tr>
<tr>
<td>NH1: Kiptopeke</td>
<td>3</td>
<td>0</td>
<td>79</td>
<td>82</td>
</tr>
<tr>
<td>NH1G: Ellots Creek</td>
<td>3</td>
<td>0</td>
<td>79</td>
<td>79</td>
</tr>
<tr>
<td>NH2: Old Plantation Creek</td>
<td>74</td>
<td>0</td>
<td>89</td>
<td>163</td>
</tr>
<tr>
<td>NH3: Cape Charles</td>
<td></td>
<td>29</td>
<td>26</td>
<td>55</td>
</tr>
<tr>
<td>NH3F: Kings Creek</td>
<td></td>
<td>29</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>NH4: Savage Neck</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>NH4C: Custis Pond Dune Area</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH5: The Gulf</td>
<td></td>
<td>26</td>
<td>23</td>
<td>49</td>
</tr>
<tr>
<td>NH6: Old Town Neck</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>NH7: Hungars Creek</td>
<td></td>
<td>96</td>
<td>376</td>
<td>472</td>
</tr>
<tr>
<td>NH8: Church Neck</td>
<td>17</td>
<td>0</td>
<td>21</td>
<td>38</td>
</tr>
<tr>
<td>NH8A: Great Neck Spit</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>NH8B: Great Neck</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>NH8C: South of Westerhouse Creek</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>NH8D: Westerhouse Creek</td>
<td>10</td>
<td>0</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>NH9: Nassawadox Creek</td>
<td>100</td>
<td>0</td>
<td>280</td>
<td>380</td>
</tr>
<tr>
<td>NH10: Occohannock Neck</td>
<td></td>
<td>6</td>
<td>29</td>
<td>35</td>
</tr>
<tr>
<td>NH10B: North of Downings</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>NH10C: Battle Point</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NH10D: Sparrow Point</td>
<td>6</td>
<td>0</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>NH11: Cherrystone Inlet</td>
<td>41</td>
<td>0</td>
<td>347</td>
<td>388</td>
</tr>
<tr>
<td>NH12: Mill Creek</td>
<td>0</td>
<td>0</td>
<td>766</td>
<td>766</td>
</tr>
<tr>
<td>NH13: Dunton Cove</td>
<td>0</td>
<td>0</td>
<td>529</td>
<td>529</td>
</tr>
<tr>
<td>NH14: Mockhorn Bay</td>
<td></td>
<td>0</td>
<td>446</td>
<td>456</td>
</tr>
<tr>
<td>NH15: Ramshorn Bay</td>
<td>10</td>
<td>494</td>
<td>53</td>
<td>557</td>
</tr>
<tr>
<td>NH16: Holt Neck</td>
<td></td>
<td>0</td>
<td>1,107</td>
<td>1,165</td>
</tr>
<tr>
<td>NH17: Machipongo River</td>
<td>12</td>
<td>3,324</td>
<td>95</td>
<td>3,431</td>
</tr>
<tr>
<td>NH18: Occohannock Creek</td>
<td>45</td>
<td>0</td>
<td>106</td>
<td>151</td>
</tr>
</tbody>
</table>

**County Totals:**  
(excluding barrier island marshes)  
<table>
<thead>
<tr>
<th>Fringe Marsh</th>
<th>Extensive Marsh</th>
<th>Embayed Marsh</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>462</td>
<td>5,800</td>
<td>2,888</td>
<td>9,150</td>
</tr>
</tbody>
</table>
CHAPTER 4

4.1 Tables 5A, 5B, 5C, 5D, 5E Segment Summaries

4.2 Segment and Subsegment Descriptions

4.3 Segment and Subsegment Maps
4.1 Segment Summaries
Tables 5 A,B,C,D&E
<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>SHORELANDS TYPE</th>
<th>SHORELANDS USE</th>
<th>OWNER-SHIP</th>
<th>ZONING</th>
<th>FLOOD HAZARD</th>
<th>WATER QUALITY</th>
<th>BEACH QUALITY</th>
<th>Rate</th>
<th>Enlarged Structures</th>
<th>Shore Protective Structures</th>
<th>POTENTIAL USE ENHANCEMENT</th>
</tr>
</thead>
</table>
| 0       | Fastland: Low shore - with dunes. Shore: Sand beach with dunes - 75% extensive marsh - 25%. | Fastland: Preserved (wildlife refuge). Shore: Preserved (wildlife refuge). Nearshore: Commercial and sports fishing; Intrasessional waterway traffic. | Federal | High. Non-critical on east of island. Medium for higher areas with buildings. | Pair to good. Beaches have dunes, breze, sand, are moderately wide. | Severe erosion, 5-40 ft/yr at west; 0 at north; accretion 15-50 ft/yr at east of bluff. | None | Groin (plank) | Riprap | None | None necessary. A groin system is needed to protect the west shore of the island.
| 1A      | Wise Point | Fastland: Low shore - 6,500'; moderately low shore with bluff, A&W. Shore: Narrow to intermediate sand beach. Nearshore: Width intermediate; multiple, parallel bars. | Fastland: Unmanaged; open - 4,100'; wooded - 8,800'. Shore: None fishing. Nearshore: Boating and fishing. | Federal 50% | High in low plain section (Wise Pt.) but not critical. Low along bluffed fastland to north. | Pair. Beach is narrow and thin. | Moderate erosion at point, slight accretion shoreline. | Side road undermined | Riprap | 200 ft. | Fair | Add groins around point to augment riprap. Access road to American House Beach should be improved, beach face should be cleaned periodically.
| 1C      | Kiptopeke Beach | Fastland: Moderately low shore with high bluffs. Shore: Intermediate to wide sand beach. Nearshore: Narrow to intermediate; smooth, regular bottom. | Fastland: Unmanaged; wooded; agricultural bluffs. Shore: Occasional fishing; boating. Nearshore: Sport fishing, boating. | Private | Agricultural | Low. | Satisfactory | Good. There is excellent sand supply. | Accretion, 26 ft/yr | 2 breakwaters 1 large pier acting as a groin | 3 Good | None other than pier maintenance. Could be developed as a major recreational facility including bathing, fishing, limited marina - land access excellent.
| 1D      | Butler's Bluff | Fastland: Moderately high shore with bluffs. Shore: Narrow, thin sand beach. Nearshore: Width intermediate; relatively plane. | Fastland: Unmanaged; wooded; agricultural bluffs. Shore: Occasional fishing; boating, beachcombing. Nearshore: Shellfishing, sport fishing. | Private | Agricultural | Low. | Satisfactory | Fair. Beach is narrow and thin. | Moderate to low erosion, sand shifts. | None | Beach width may be enhanced by properly designed groin from bluff to bulkhead or movement at toe of bluff plus sand nourishment from nearshore zone. Would serve as good public beach with addition of adequate access roads. Number of access points should be limited to protect bluff. | Table 5A SHORELINE SITUATION REPORT, NORTHAMPTON COUNTY, Segment Summary - Fishermans Island and Kiptopeke Area
### Table 5A  NORTHAMPTON COUNTY (Continued)

<table>
<thead>
<tr>
<th>SUNGEMENT</th>
<th>SHORELANDS TYPE</th>
<th>SHORELANDS USE</th>
<th>OWNER-SHIP</th>
<th>ZONING</th>
<th>FLOOD HAZARD</th>
<th>WATER QUALITY</th>
<th>BEACH QUALITY</th>
<th>Rate</th>
<th>Endangered Structures</th>
<th>Type</th>
<th>No.</th>
<th>Effectiveness</th>
<th>Suggested Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E FORD</td>
<td>Fastland: Low shore with dunes; Shore: Wide, clean, sand beach; Nearshore: Width intermediate; discontinuous subparallel bars.</td>
<td>Private</td>
<td>Agricultural</td>
<td>High. Not critical as no structures are endangered.</td>
<td>Satisfactory</td>
<td>Good. There is a wide, clean sand beach.</td>
<td>Accretion, 1-2 ft/yr.</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1F SOUTH OF ELLIOTS CREEK</td>
<td>Fastland: Low shore, fronted by elongate dunes; Shore: Narrow, thin beach with numerous fallen trees and outcroppings of clay; Nearshore: Width intermediate; discontinuous subparallel bars; some colluvial sand waves near beach.</td>
<td>Private</td>
<td>Agricultural</td>
<td>Medium. Storm surge could overrun lower area, but no structures are below 10' contour.</td>
<td>Satisfactory</td>
<td>Poor. Beach is very thin, overcrowded with fallen trees.</td>
<td>Severe erosion, 3 ft/yr.</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1G ELLIOTS CREEK</td>
<td>Fastland: Low shore. Shore: Fringe and embayed marsh 95%; sand beach 5%. Creek: Shallow with narrow inlet.</td>
<td>Private</td>
<td>Agricultural</td>
<td>Low. Narrow inlet would prevent or slow storm surge.</td>
<td>Satisfactory</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1H COSTIN FORD</td>
<td>Fastland: Low shore and a few vegetated dunes. Shore: Narrow, thin sand beach, numerous fallen trees. Nearshore: Width intermediate; discontinuous subparallel bars; mud flats.</td>
<td>Private</td>
<td>Agricultural</td>
<td>Medium. Storm surge could inundate fastland.</td>
<td>Satisfactory</td>
<td>Fair near pond; poor elsewhere.</td>
<td>Severe erosion, approx. 5 ft/yr.</td>
<td>3 houses</td>
<td>Needs a lengthy bulkhead (4,400' continuous) with a groin field to augment the bulkhead.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**POTENTIAL USE ENHANCEMENT**

- Could be developed for outdoor public recreation including nature walks, picnic facilities, and normal beach activities. To prevent the deepening beach buggies or four wheel drive vehicles should be allowed in area.
- Erosion protective measures would be too costly at present for development.
- Small boat recreation, waterfowl hunting or water bird sanctuary. Improvised to clear inlet for boat access to bay.

**SHORE EROSION SITUATION**

- Endangered Structures
- Type: None
- Effectiveness: None
- Suggested Action: Needs a lengthy bulkhead (4,400' continuous) with a groin field to augment the bulkhead.

**FLOOD HAZARD**

- High. Not critical as no structures are endangered.
- Medium. Storm surge could overrun lower area, but no structures are below 10' contour.
- Low. Narrow inlet would prevent or slow storm surge.

**WATER QUALITY**

- Satisfactory
- Poor
- Good
<table>
<thead>
<tr>
<th>SUBSEGMENT</th>
<th>SHORELENS TYPE</th>
<th>SHORELENS USE</th>
<th>OWNER-SHIP</th>
<th>ZONING</th>
<th>FLOOD HAZARD</th>
<th>WATER QUALITY</th>
<th>BEACH QUALITY</th>
<th>ENDANGERED STRUCTURES</th>
<th>STORE PROTECTION STRUCTURES</th>
<th>SUGGESTED ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A</td>
<td>Allegood Pond</td>
<td>6,000 feet</td>
<td>Fastland: Low shore.</td>
<td>Private</td>
<td>Agricultural</td>
<td>Medium to high. Most land is below the 10-foot contour.</td>
<td>Satisfactory</td>
<td>Fair to poor. Narrow, thin, debris covered in mud part.</td>
<td>Moderate erosion, nearly 3 ft/yr.</td>
<td>None</td>
</tr>
<tr>
<td>3B</td>
<td>Spool Area</td>
<td>6,000 feet</td>
<td>Fastland: Artificial fill (backshore)</td>
<td>Private</td>
<td>Agricultural</td>
<td>Medium. Most of the beach is between 1 and 10 ft.</td>
<td>Satisfactory</td>
<td>Excellent. Wide, sandy beach.</td>
<td>No erosion</td>
<td>None</td>
</tr>
<tr>
<td>3C</td>
<td>Cape Charles Harbor</td>
<td>34 acres 0.5 mile</td>
<td>Fastland: Low shore, artificial fill.</td>
<td>Private</td>
<td>Industrial</td>
<td>Medium. Some danger from storm surge.</td>
<td>Intermediate</td>
<td>Poor.</td>
<td>No erosion</td>
<td>None</td>
</tr>
<tr>
<td>3D</td>
<td>Cape Charles City Beach</td>
<td>2,800 feet</td>
<td>Fastland: Low shore.</td>
<td>Private</td>
<td>Industrial</td>
<td>Medium. Some of the beach is between 5 and 10 ft. Could be E0000 by high water stage.</td>
<td>Intermediate</td>
<td>Fair. The beach is narrow, crossed by storm drains.</td>
<td>Slight erosion</td>
<td>None</td>
</tr>
<tr>
<td>3E</td>
<td>Owens Landing</td>
<td>4,400 feet</td>
<td>Fastland: Low shore.</td>
<td>Private</td>
<td>Agricultural</td>
<td>Medium. Fastland abutments are between 5 and 10 ft.</td>
<td>Satisfactory</td>
<td>Fair. The beach is narrow but sandy, becoming grassy toward the north end.</td>
<td>Slight to moderate erosion, heavier in the southwesterly quarter of the abutment.</td>
<td>None</td>
</tr>
<tr>
<td>3F</td>
<td>Kings Creek</td>
<td>187 acres 1.8 miles</td>
<td>Fastland: Low shore.</td>
<td>Private</td>
<td>Agricultural</td>
<td>Medium to narrow and upper channel is shallow. Low to fastland.</td>
<td>Satisfactory</td>
<td>Fair. The creek is narrow, crossing by storm drains.</td>
<td>No beaches.</td>
<td>None</td>
</tr>
</tbody>
</table>

Table 38: SHORELINE SITUATION REPORT, NORTHAMPTON COUNTY

Segment Summary - Cape Charles City Area
<table>
<thead>
<tr>
<th>SUBSEGMENT</th>
<th>SHORELANDS TYPE</th>
<th>SHORELANDS USE</th>
<th>OWNER</th>
<th>ZONING</th>
<th>FLOOD HAZARD</th>
<th>WATER QUALITY</th>
<th>BEACH QUALITY</th>
<th>SHORE EROSION SITUATION</th>
<th>POTENTIAL USE ENHANCEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A WESCOTT POINT 3,000 feet</td>
<td>Fastland: Low shore, sand spit with low dunes; shore: Sand beach.</td>
<td>Fastland: Unmanaged; shore: None.</td>
<td>Private</td>
<td>Agricultural</td>
<td>High: Exposed to all downslope from bay.</td>
<td>Satisfactory</td>
<td>Good; Medium width sand beaches.</td>
<td>Severe erosion, the spit grows and recedes annually, due to dunes.</td>
<td>None</td>
</tr>
<tr>
<td>4B OLD ORCHARD 3,300 feet</td>
<td>Fastland: Low shore with single dune line; shore: Narrow sand-beach.</td>
<td>Fastland: Unmanaged; shore: None.</td>
<td>Private</td>
<td>Agricultural</td>
<td>Medium</td>
<td>Satisfactory</td>
<td>Fair; Sand is bright and clean, but beach is narrow.</td>
<td>No erosion at present.</td>
<td>None</td>
</tr>
<tr>
<td>4C CURTIS POND DUNE AREA 9,600 feet</td>
<td>Fastland: Dunes, low shore behind.</td>
<td>Fastland: Dune area unmanaged; agricultural behind.</td>
<td>Private</td>
<td>Agricultural</td>
<td>Low to medium</td>
<td>Satisfactory</td>
<td>Good to fair; 1/3 beach medium width, and good; poop in north 1/3; narrow, littered with stumps and debris.</td>
<td>No erosion in south; 1/3 severe erosion in north 1/3.</td>
<td>None</td>
</tr>
<tr>
<td>5A TANKARD HOOK SMITH BEACH 13,000 feet</td>
<td>Fastland: Low shore with bluff.</td>
<td>Fastland: Residential; shore: None.</td>
<td>Private</td>
<td>Agricultural</td>
<td>None</td>
<td>Satisfactory</td>
<td>Fair to good; Sand is bright and clean, but beach is generally narrow.</td>
<td>Severe erosion, 7 to 20 ft/year.</td>
<td>Approxi­mately 150 feet are within 200 ft of the bluff; none much closer.</td>
</tr>
<tr>
<td>6A OLD TOWN NGH 6,500 feet</td>
<td>Fastland: Low shore with bluff (3,000 ft north); dunes with low bluff behind (1,500 ft north).</td>
<td>Fastland: Unmanaged, wooded (northeast); residential (northwest).</td>
<td>Private</td>
<td>Agricultural</td>
<td>Low</td>
<td>Satisfactory</td>
<td>Fair; Sand is bright and clean, but beach is generally narrow.</td>
<td>Severe erosion, critical; 1.7 to 6 ft/year; shore in middle 1,000 ft.</td>
<td>1 dwelling within 200 ft of bluff.</td>
</tr>
</tbody>
</table>

Table 5C: SHORELINE SITUATION REPORT, NORTHAMPTON COUNTY Segment Summary - Savage Neck & Old Town Neck
<table>
<thead>
<tr>
<th>SUBSEGMENT</th>
<th>SHORELands TYPE</th>
<th>SHORELANDS USE</th>
<th>OWNER-SHIP</th>
<th>ZONING</th>
<th>FLOOD HAZARD</th>
<th>WATER QUALITY</th>
<th>BEACH QUALITY</th>
<th>SHORE EROSION SITUATION</th>
<th>Suggested Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RA GREAT NECK SPIT</strong>&lt;br&gt;2,800 feet</td>
<td>Fastland: Low shore, (sand spit with low dunes); wounded above high tide.&lt;br&gt;Shore: Fringe marsh, some isolated beach.&lt;br&gt;Nearshore: Wide; with one large parallel bar seaward of extensive tidal flats; small oblique sand waves near shore and on the bar.</td>
<td>Private&lt;br&gt;Unmanaged; wooded.&lt;br&gt;Shore: None.&lt;br&gt;Nearshore: Fishing, shellfishing.</td>
<td>None&lt;br&gt;None, None, None&lt;br&gt;None, None, None</td>
<td>Agricultural&lt;br&gt;High, spit subject to washover by storm surge.&lt;br&gt;Satisfactory</td>
<td>Poor</td>
<td>Moderate erosion, 2-3 ft/yr.</td>
<td>Limited area and access suggest the area should be left natural, restricted perhaps to pedestrian travel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SB GREAT NECK</strong>&lt;br&gt;12,000 feet</td>
<td>Fastland: Low shore with steep and some low dunes.&lt;br&gt;Shore: Narrow sand beaches in the north 3/4; with some alternation of pocket sand beaches in south 1/4.&lt;br&gt;Nearshore: Intermediate to wide; with some on lee parallel here.</td>
<td>Private&lt;br&gt;Agricultural&lt;br&gt;Yes&lt;br&gt;Shore: None.&lt;br&gt;Nearshore: Sport fishing and pound nets.</td>
<td>None</td>
<td>Agricultural&lt;br&gt;None</td>
<td>Satisfactory</td>
<td>None</td>
<td>None.&lt;br&gt;The bluff is an attractive location for residential use. The looped spits and associated lagoons are of sufficient natural interest that care should be taken not to destroy them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SC SOUTH OF WESTERHOUSE CREEK</strong>&lt;br&gt;4,700 feet</td>
<td>Fastland: Low shore with low bluff.&lt;br&gt;Shore: Narrow sand beaches.&lt;br&gt;Nearshore: With intermediate, with hard more or less parallel to beach, and oblique to normal sand waves near toe of beach.</td>
<td>Private&lt;br&gt;Agricultural&lt;br&gt;Yes&lt;br&gt;Shore: None.&lt;br&gt;Nearshore: Fishing.</td>
<td>None</td>
<td>Agricultural&lt;br&gt;None</td>
<td>Satisfactory</td>
<td>None</td>
<td>None.&lt;br&gt;Marginal. Erosion protection would be costly.</td>
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<tr>
<td><strong>SD WESTERHOUSE CREEK</strong>&lt;br&gt;155 acres 1 mile</td>
<td>Fastland: Low shore, steep slopes.&lt;br&gt;Shore: Fringe marsh, sand beaches at inlet (less than 5% of total).&lt;br&gt;Creek: Shallow, mud bottoms; tidal delta and marsh at inlet.</td>
<td>Private&lt;br&gt;Agricultural&lt;br&gt;Yes&lt;br&gt;Shore: None.&lt;br&gt;Nearshore: Shellfishing.</td>
<td>None</td>
<td>Agricultural&lt;br&gt;Medium in creek due to possible storm surge.</td>
<td>Satisfactory</td>
<td>No beach.&lt;br&gt;No erosion.&lt;br&gt;No erosion.&lt;br&gt;No erosion.</td>
<td>None.&lt;br&gt;High for residential use on bluff, but creek should be protected against over-exploitation and pollution.</td>
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<tr>
<td><strong>SE SHOOTING POINT</strong>&lt;br&gt;6,500 feet</td>
<td>Fastland: Low shore with bluff.&lt;br&gt;Shore: Narrow and shallow.&lt;br&gt;Nearshore: With intermediate, multiple parallel bars with reticulate pattern of sand waves superimposed on bars.</td>
<td>Private&lt;br&gt;Agricultural&lt;br&gt;Yes; exception Beach-combing&lt;br&gt;Shore: None.&lt;br&gt;Nearshore: Sport fishing.</td>
<td>None</td>
<td>Agricultural&lt;br&gt;Low</td>
<td>Satisfactory</td>
<td>Fair; sand is bright, medium, fine, but beach is narrow.</td>
<td>Moderate erosion, 2-3 ft/yr.</td>
<td>None.&lt;br&gt;Marginal. Would make a fine residential area with a good bay overlook, but erosion problem is serious and would need protection in the form of extensive bulkheading and groins prior to development.</td>
<td></td>
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<tr>
<td>SUBSEGMENT</td>
<td>SHORELANDS TYPE</td>
<td>SHORELANDS USE</td>
<td>OWNER- SHIP</td>
<td>ZONING</td>
<td>FLOOD HAZARD</td>
<td>BEACH QUALITY</td>
<td>BEACH EROSION SITUATION</td>
<td>SHORE PROTECTION STRUCTURES</td>
<td>POTENTIAL USE ENHANCEMENT</td>
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<tr>
<td>10A SILVER BEACH</td>
<td>Fastland: Low shore</td>
<td>Residential</td>
<td>Private</td>
<td>Agricultural</td>
<td>Low. Bluff protects residences from storm surge.</td>
<td>Fair to poor: Generally narrow; in riprapped area, beach is non-existent at high tide.</td>
<td>Poor, severe erosion, critical, 5.7 ft/yr</td>
<td>Bulkhead, 200 ft long at point; Plank groins; Riprap, with new bulkhead</td>
<td>Riprap revetment or solid bulkhead needed for built-up part of subsequent. Associated should be a well-designed, impermeable groin field. Unified action needed.</td>
</tr>
<tr>
<td>10C BATTLE POINT</td>
<td>Fastland: Low shore</td>
<td>Recreational (campsground)</td>
<td>Private</td>
<td>Agricultural</td>
<td>Medium: High sand wave could overtop area, and cause some flood damage to cottages and mobile homes.</td>
<td>Poor. Very narrow beach, much debris.</td>
<td>Poor, severe erosion, critical, 5 ft/yr</td>
<td>Discontinuous riprap; Discontinuous bulkheading</td>
<td>Needs unified action over the whole area, both bulkheading (or riprap movement) and groin field.</td>
</tr>
<tr>
<td>10D SPARROW POINT</td>
<td>Fastland: Low shore</td>
<td>Unmanaged, wooded.</td>
<td>Private</td>
<td>Agricultural</td>
<td>High, but not critical, to assessment areas; Mudline to fastland above 5 ft contour.</td>
<td>Fair to poor: Some areas of medium width, elsewhere narrow.</td>
<td>None.</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>
4.2 Segment and Subsegment Descriptions
SEGMENT 0, FISHERMANS ISLAND
SEGMENT DESCRIPTION
FISHERMANS ISLAND, NORTHAMPTON COUNTY, VIRGINIA
SEGMENT 0 (Maps 2A, 2B, 2C)

EXTENT: 6 miles, approximately, omitting inlets between the easterly bar and the perimeter of the north causeway. It is an island, comprising about 1,000 acres, about half of which is marsh, the rest is beach, sand flats and dunes.

SHORELands TYPE
FASTLAND: Low shore (dunes and sand flats, sparsely vegetated).
SHORE: Sand dunes and medium width sand beaches, west, south and east (57%); extensive marshes, north (43%). Spit beaches on the east shift considerably and frequently.
NEARSHORE: Narrow to west; intermediate to south; wide to east and north. There are parallel, multiple bars at the northwest.

SHORELands USE
OFFSHORE BOTTOM: Variable, shoals and channels occupy the bay entrance area to the west, south, and east of Fishermans Island. Tidal currents up to 2 knots sweep within 800 yards of the beach along the west side of the island on both ebb and flood tides. Along the other side of the island they are much less, due to the more extensive shallow areas off the beaches.

WIND AND SEA EXPOSURE: Sand beaches are oriented west, south and east. Fetches are NW - 20 mi., W - 14 mi., SW - 10 mi., SE and E - over 1,000 miles.

OWNERSHIP: Federal.

FLOOD HAZARD: High, noncritical to most of the island; medium to higher areas where buildings and structures are located, but flooding could be serious due to possible damage to facilities if it did occur.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Fair to good. Sand is clean and bright, the beaches are moderately wide.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Recent erosion-accretion trends are complex and to an uncertain extent reflect spoil dumping at the northwest corner, fill for the construction of the bridge-tunnel highway approaches, plus accretion or loss due to the presence of the road. In general, there appears to be natural erosion of the west to northwest face of the island of 25 to 40 feet per year; accretion between 15 and 50 feet per year on the south shore. The spots at the east side shift continually back and forth and do not show any particular trend. The marsh shore on the north side is quite stable.

If erosion on the west side continues at the same rate, the buildings on the island, all located within 600 feet of the west shore in 1967, are in danger of being lost in 20 years or less (from 1973).

ENDANGERED STRUCTURES: None at present.

SHORE PROTECTIVE STRUCTURES: Type and Number:
- Groin - One plank groin extends at right angles out from the west side of the highway causeway from Fishermans Island to Wise Point. Riprap - The causeway is riprapped on either side of the road from its north end to the marsh shore, a total length of about 8,500 feet (Photos NH-0-146 to 148).

Effectiveness: The groin was installed prior to the existence of the spoil area which was built up to protect the northwest corner of the island and the causeway. It may have been necessary to protect the causeway then, but is unnecessary now. The riprap appears effective around the outer end of the causeway where it is surrounded by water.

Suggested Action: Considering that Fishermans Island is a wildlife refuge, with no habitations presently occupied, and with the highway crossing in good shape, no immediate erosion protective measures appear necessary. However, a groin system along the west shore would be desirable to protect the built up area nearby, the only "high" ground area on the island.

OTHER SHORE STRUCTURES: There are several fish trap leaders along the northwest and north side of the island and two piers, one on the west side, the other at the northwest corner. The latter is essentially useless as a pier due to sand encroachment. In addition, there are the highway causeway on the north side, and highway bridge abutment and piers at the southwest corner.

POTENTIAL USE ENHANCEMENT: Fishermans Island is presently set aside as a wildlife refuge. As the beaches are good and they might be made accessible from the highway comparatively easily, perhaps accommodation could be made to use the southern and eastern margins of the island for public recreation, while preserving the interior and northern and western shores for wildlife. No auto traffic should be allowed on the beach.

VIMS, #562, 1140,000 scale, CHEASapeake BAY, Cape Charles to Norfolk Harbor, 1971.

PHOTOS: Aerial-USDA 17May38 ANP22-18, 19.
USAF 10Nov59 AF59-35 R-21 1936.
USGS 30Jan67 GS-SWIK-1 1-91, 98;
USGS 5Feb67 GS-SWIK-1 1-143, 212.
USGS 24Jul72 MSC-207 R-86 0010, 0011.
VIMS 18Dec72 NH-0-146 to 148.
VIMS 100ct72 NH-0-1 to 15;
VIMS 18Dec72 NH-0-146 to 148.
SEGMENT 1, KIPTOPEKE
SUBSEGMENTS A-H
SUBSEGMENT DESCRIPTIONS
WISE POINT, NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENT 1A (Maps 2A, 2B, 2C)

EXTENT: 10,900 feet (2.1 mi.), Wise Point to 0.6 mile north of America House Inn.

SHORELANDS TYPE
FASTLAND: Low shore (southerly 6,500 ft.); to moderately low shore, with 25-foot bluff directly behind the beach (northerly 4,400 ft.).
SHORE: Sand beach, narrow to intermediate width.
NEARSHORE: Intermediate (750 yds.); multiple, parallel bars; short, oblique bars at the edge of the beach.

SHORELANDS USE
FASTLAND: Unmanaged, unwooded (4,100 ft.), wooded (6,800 ft.).
SHORE: Some bathing near America House, boat launching at Wise Point.
NEARSHORE: Boating and fishing.

OFFSHORE BOTTOM: A 15-foot deep shoal lies 1 mile off the beach, a 30-foot channel lies between.
WIND AND SEA EXPOSURE: The shoreline trend is N - S. The fetch from the SW is 16 miles, W is 15 miles and NW is 24 miles.
OWNERSHIP: Federal (20%), private (80%).
ZONING: Agricultural.
FLOOD HAZARD: High in low plain area (Wise Point) but not critical. The fastland to the north is high enough to be above most flood levels.
WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.
BEACH QUALITY: Good. Beach is thin and not overly wide, but the sand is bright and the grain size is medium-fine.
PRESENT SHORE EROSION SITUATION
EROSION RATE: Slight accretion apparent but not sufficient, or too recent to have shown up in the historical survey; the bluff supplies the sand. There has been moderate erosion at the point.

ENDANGERED STRUCTURES: Side road in danger of being undermined at the point.
SHORE PROTECTIVE STRUCTURES: Type: Riprap, about 200 feet long, to protect the road at the point.
Effectiveness: Appears to be holding.

LATIMER SIDING, NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENT 1B (Maps 2A, 2B, 2C)

EXTENT: 5,200 feet (1 mi.), from 0.6 mile north of America House Inn to 0.7 mile south of former Kiptopeke ferry pier.

SHORELANDS TYPE
FASTLAND: Moderately low shore, with 25-foot bluff.
SHORE: Narrow, thin sand beach.
NEARSHORE: Intermediate width (450 yds.); contains at least 3 parallel bars, and has short, frequent, southwest-trending, oblique, sand waves at the toe of the beach.

SHORELANDS USE
FASTLAND: Unmanaged, wooded; agricultural behind.
SHORE: Limited bathing.
NEARSHORE: Boating, fishing.

OFFSHORE BOTTOM: A 15-foot deep shoal lies 1½ miles off the beach, a 25 to 30-foot channel intervenes.
WIND AND SEA EXPOSURE: The shoreline trend is NW - SSE. The fetch from the SW is 17 miles, WSW is 15 miles, and WNW is 20 miles.
OWNERSHIP: Private.
ZONING: Agricultural.
FLOOD HAZARD: Low bluff protects fastland property from high seas.
WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.
BEACH QUALITY: Fair. Sand is good, but beach is narrow and thin.
PRESENT SHORE EROSION SITUATION
EROSION RATE: Moderate, 2.5 feet per year.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: Type: Some rubble riprap at the end of the road from Latimer Siding.
Effectiveness: Questionable.
Suggested Action: Erosion is neither severe nor critical here, so no immediate action is
necessary. However, if it is desired to eliminate erosion and to widen the beach it would probably be necessary to install bulkheading along the base of the bluff, add a groin-field, and artificially nourish the beach, perhaps from the bars of the nearshore zone.

OTHER SHORE STRUCTURES: One dilapidated stairway gives access over the bluff to the beach from the road at Latimer Siding.

POTENTIAL USE ENHANCEMENT: With increased access to the beach and improvements suggested above to widen the beach, the recreational aspect of the shore could be enhanced. However, with the ferry pier beach immediately to the north, the foreseeable need to improve this section of the beach is not great. Elimination of potato dumping over the bluff at Latimer Siding would improve the vicinity.

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

PHOTOS: Aerial-USDA 17May38 ANP22-17, 21.

WIND AND SEA EXPOSURE: The shoreline trend is NNW - SSE. Not considering the breakwater, there is a SSW fetch of 16 miles, a WSW fetch of 17 miles, and a NNW fetch of 19 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: Low. Except for the beach itself, most structures are above the likely reach of storm surge.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Excellent. Although relatively narrow at either end, the beach widens rapidly toward the middle where drifting sand has collected either side of the ferry pier. Sand bright and clean, fine for beach recreation.

PRESENT SHORE EROSION SITUATION

EROSION RATE: None. There is +26 feet per year accretion right at the pier, progressively slower either side away from the pier.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: Type and Number: A two-sectioned breakwater, blanketing 3,500 feet of beach, located 2,000 feet out, composed of purposefully sunken, obsolete freighters placed bow to stern. The ferry pier itself acts as a large groin.

Effectiveness: The position of the breakwaters, although placed to provide a lee for the ferries, apparently also aids the pier in trapping large quantities of sand from either direction.

Suggested Action: None other than pier maintenance.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Excellent for major recreational facility including bathing, fishing, limited marina. Land access is already good.

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


USGS 50Jkm27 91-SWED-1 1-03, 90, 91.

VIMS 22Aug72 NH-1B-117 to 115.

VIMS 100ct72 NH-10-18, 19.
BUTLERS BLUFF, NORTHAMPTON COUNTY, VIRGINIA

SUBSEGMENT 1D (Maps 3A, 3B, 3C)

EXTENT: 7,000 feet (1.3 mi.), from 0.5 mile north of former Kiptopeke ferry pier to 0.3 mile north of Picketts Harbor.

SHORELANDS TYPE

FASTLAND: Moderately high shore, with a 30 to 55-foot bluff directly behind the beach (southerly 4,500 ft.); to moderately low shore, with a 20 to 25-foot bluff (northerly 2,500 ft.).

SHORE: Narrow, thin, sand beach.

NEARSHORE: Intermediate width (700 to 1,300 yds.), relatively smooth.

SHORELANDS USE

FASTLAND: Unmanaged, wooded; agricultural behind.

SHORE: Occasional bathing, beachcombing.

NEARSHORE: Sport fishing, shellfishing.

OFFSHORE BOTTOM: Compa.ratively steep slope from nearshore to a deep channel 3,600 feet offshore, rises gently seaward to an extensive plain bottom with average depth of 28 feet. Channel shoals and disappears at about 28 feet, near the ferry pier, deepens to about 65 feet near the farthest point.

WIND AND SEA EXPOSURE: The shoreline trend is NNW - SSE. The fetch from the SSW is 16 miles, WSW is 13 miles, and WNW is 18 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: Low. Bluff protects fastland area from storm surge over-run.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Fair. Sand bright and clean, medium-fine in size, but beach is narrow and thin.

PRESENT SHORE EROSION SITUATION

EROSSION RATE: Moderate to low. Numerical rate not given in historical survey. Sand appears to move in either direction depending on season of the year.

UNHANDED STRUCTURES: None.

SUGGESTED MEASURES: None.

Suggested Action: Situation not critical, but in order to stem erosion and perhaps widen the beach, the base of the bluff might be bulkheaded or reveted, a groin field might be included, and nourishment could come from bars offshore by suction dredge.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: If adequate access were provided over the bluff at selected locations along the subsegment, the area could serve as a good bathing beach. Access should be restricted to protect the bluff between stairways. The top of the bluff offers an attractive overlook to sightseers and picnickers.


PHOTOS: Aerial-USDA 17May38 ANP22-14, 15.

VIMS 22Aug72 NH-ID-118 to 125;
VIMS 10Oct72 NH-ID-20 to 22.

FORD DRAIN, NORTHAMPTON COUNTY, VIRGINIA

SUBSEGMENT 1B (Maps 3A, 3B, 3C)

EXTENT: 7,600 feet (1.4 mi.), from 0.3 mile north of Picketts Harbor to 0.7 mile south of Ellots Creek.

SHORELANDS TYPE

FASTLAND: Low shore with elongate dunes, rising to as much as 50 feet, directly behind the beach.

SHORE: Wide, clean sand beach.

NEARSHORE: Sport fishing.

OFFSHORE BOTTOM: Deepens rapidly from 6 feet to 13-22 feet in the southerly part of Cherrystone Channel (about 4,000 ft. off shore), shoals again to 12-15 feet (at about 5,000 ft.), deepens rapidly to 75-83 feet (6,500 ft. out), then finally shoals again to the general offshore depth in this area of about 28 feet.

WIND AND SEA EXPOSURE: The shoreline trend is NW - SSE. The fetch from the SSW is 16 miles, WSW is 13 miles, and WNW is 18 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High but not critical. Although this is a low plain area, there are no structures to be endangered by storm surge.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Good. Sand is good, clean and bright, beach is wide. Pond Drain outlet crosses the beach near the center of the subsegment, but is intermittent.
PRESENT SHORE EROSION SITUATION

EROSION RATE: Area in general appears to be accreting at a rate of 1-2 feet per year.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.
Suggested Action: None necessary on beach.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Excellent area to develop for public recreational purposes. Would include normal beach activities, picnicking, nature walks in dune area. Measures should be taken to protect the dunes from over exploitation, such as by dune buggies, etc.

C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 17May38 ANP22-13, 14.
USAF 1Dec59 AF59-35 R-26 2477.
VADM 10Apr63 5 065 129 125, 127.
VIMS 22Aug72 NH-12-125 to 127;
VIMS 100ct72 NH-12-23 to 25.

SOUTH OF ELLIOTS CREEK,
NORTHAMPTON COUNTY, VIRGINIA

SUBSEGMENT 1P (Maps 3A, 3B, 3C)

EXTENT: 3,400 feet (0.7 mi.), from 0.7 mile south of Ellwot Creek entrance.

SHORELANDS TYPE

FASTLAND: Low shore, with single, low elongate dune immediately behind beach.
SHORE: Narrow, thin beach, littered with numerous fallen trees. There are frequent outcroppings of clay.
NEARSHORE: Intermediate width (1,100 yds.), with discontinuous, sub-parallel bars, some oblique sand waves at toe of the beach; the outer part, from 4 to 12 feet deep, slopes more steeply than the inner part.

SHORELANDS USE

FASTLAND: Unmanaged, wooded; some agricultural behind.
SHORE: None, perhaps beachcombing.
NEARSHORE: Fishing.

OFFSHORE BOTTOM: The bottom slopes moderately from 12 feet to 20-23 feet in Cherrystone Channel (4,500 ft. off the beach), then it shoals to 9-10 feet on Old Plantation Plate (7,000 ft. off), and finally deepens rapidly to 75 feet in the bay (10,000 ft. off the beach).

WIND AND SEA EXPOSURE: The shoreline trend is N - B. The fetch from the SW is 14 miles, W is 18 miles, and NW is 14 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: Medium. Storm surge could overrun the area, but there are no structures below the 10-foot contour.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Poor. The sand is good, but the beach is narrow and thin, and is littered with eroded debris.

PRESENT SHORE EROSION SITUATION

EROSION RATE: Severe, as evidenced by fallen trees and residual stumps along the narrow beach. Also compare photos ANP22-13 (1938) and 5 065 129 125 (1963). Comparison between these photos indicates a rate of at least 5 feet per year.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.
Suggested Action: The situation is noncritical, and no immediate action is called for. If the area ever does become important to development, bulkheading and an associated groin system will become necessary.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Low at present. High erosion rate would necessitate considerable expense in protecting the fastland. For recreation, the dune area to the south (subsegment 1E) offers much more development potential.

C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

USAF 1Dec59 AF59-35 R-26 2477.
VADM 10Apr63 5 065 129 125.
VIMS 22Aug72 NH-12-128, NH-10-129, 130;
VIMS 100ct72 NH-12-26.
ELLIOTS CREEK, NORTHAMPTON COUNTY, VIRGINIA
SUBSEQUENT 10 (Maps 3A, 3B, 3C)

EXTENT: Area - 56 acres; length - (mouth to head of east arm) 0.8 mile, (mouth to head of south arm) 0.9 mile.

SHORELANDS TYPE
FASTLAND: Low shore.
SHORE: Fringe and embayed marsh about 95% (5 acres fringe, 79 embayed); sand beach about 5%.
CREEK: Shallow. Inlet usually narrow with shoals.

SHORELANDS USE
FASTLAND: Agricultural.
SHORE: Landing and launching small boats.
CREEK: Possible waterfowl hunting.

OWNERSHIP: Private.
ZONING: Agricultural.

FLOOD HAZARD: Low. Inlet spits provide some protection from storm surge flooding, and watershed area is small.

WATER QUALITY: Satisfactory. Meets both water class II and shellfish standards.

PRESENT SHORE EROSION SITUATION
EROSION BARS: None.
HIDDEN STRUCTURES: None.
SUBSOIL PROTECTIVE STRUCTURES: None.

OTHER SHORE STRUCTURES: None.
NAVIGABILITY: Generally poor.
APPROACHES: No channel. 2-foot or less depths extend out to 2,000 feet offshore, nearest approach of 6-foot contour is 2,200 feet; appear to be shifting bars and shoals outside of the inlet.
INLET: Narrow with a tortuous channel extending through 0.3 mile of marsh, subject to shifting shoals.
CREEK: Shallow, appears usable only by skiffs or small center-board sailboats.

POTENTIAL USE ENHANCEMENT: Low. Suitable for recreational use with small boats and for waterfowl hunting, or alternately as a water-bird sanctuary. Impractical to attempt to improve inlet and approaches for boating from bay.

C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

VADE 10 Apr65 5065 129 125.
VIMS 22Aug72 NH-16-129, 130.
VIMS 18Dec72 NH-10-145.

COSTIN POND, NORTHAMPTON COUNTY, VIRGINIA
SUBSEQUENT 1H (Maps 3A, 3B, 3C)

EXTENT: 4,800 feet (0.9 mi.), from Elliot's Creek entrance to Old Plantation Creek entrance.

SHORELANDS TYPE
FASTLAND: Low shore, some vegetated dunes; an elongate pond, normal to the trend of the beach, lies behind the center of the subsegment.
SHORE: Sand beach, very narrow, thin, strewn with fallen trees and bushes either side of Costin Pond area; widens in front of Costin Pond where the backshore is low and subject to occasional washover; the beach also widens at the south spit of the entrance to Old Plantation Creek (Segment 2).
NEARSHORE: Intermediate width (1,100 yds.) on average to 12-foot contour, with discontinuous, sub-parallel bars and mud-flats.

SHORELANDS USE
FASTLAND: Agricultural primarily, with a few summer dwellings near Elliot's Creek.
SHORE: Probable intermittent bathing and shell-fishing.
NEARSHORE: Fishing.

OFFSHORE BOTTOM: Deepens to 19-23 feet in Cherrystone Channel, 6,000 feet off the beach; then shoals to 9-10 feet on Old Plantation Flat, 8,700 feet off the beach; and deepens again rapidly to 70-75 feet in the bay, 11,500 feet off the beach; contours are fairly regular.

WIND AND SEA EXPOSURE: The shoreline trend is N-S. The fetch from the SW is 19 miles, W is 18 miles, and NW is 14 miles.

OWNERSHIP: Private.
ZONING: Agricultural.

FLOOD HAZARD: Medium from storm surge; most of the fastland is below 10 feet in elevation. A flood situation could be serious considering the dwellings by the beach.

WATER QUALITY: Satisfactory. Meets both water class II and shellfish standards.
BEACH QUALITY: Fair in front of Costin Pond area, elsewhere poor, as the beach is narrow, thin, and strewn with debris.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Severe, approximately 5 feet per year along most of the length of the sub­segment. Situation is critical in area of residences.
ENDANGERED STRUCTURES: There are 3 dwellings, one in imminent danger of destruction (Photo NH-1H-22G, 3Aug72).
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: To protect the endangered dwellings some 3,000 feet of continuous bulk-heading along the waterfront is necessary. Shorter lengths in front of the individual houses would be quickly flanked and rendered useless. Groins would be necessary to re-build the beach.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Low because of expense involved in protecting the shorefront, and storm flood danger.

C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

USAP 50050v59 AF59-35 8-24 2284.
VaDH 10Apr55 5065 129 125, 125.
VIMS 22Aug72 NH-1H-130, NH-1H-131.
VIMS 100ct72 NH-1H-27.
VIMS 16Dec72 NH-1H-145.

Ground - VIMS 3Aug72 NH-1H-22G.
SEGMENT 2, OLD PLANTATION CREEK
SEGMENT DESCRIPTION
OLD PLANTATION CREEK, NORTHAMPTON COUNTY, VIRGINIA
SEGMENT 2 (Maps 4A, 4B, 4C)

EXTENT: 670 acres; main (north) arm 2½ miles, east arm 1½ miles long, both measured from the inlet.

SHORELANDS TYPE
FASTLAND: Low shore, generally with a 10-foot bluff rising from the marsh-edge.
SHORE: Fringe and embayed marsh (74 and 89 acres respectively), except sand beaches on spits either side of inlet.
CREEK: Submerged meanders, dendritic branches, shallow, sand and mud flats, no appreciable channel beyond Hunts Point.

SHORELANDS USE
FASTLAND: Agricultural.
SHORE: None, except that incidental to boat landing and wharf crossing.
CREEK: Shellfish industry, contains 448 acres of leased oyster tracts; waterfowl hunting, fishing and some small boating.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High in the vicinity of the inlet, medium elsewhere near the water's edge due to the possibility of storm flood surge from the bay but noncritical, as most buildings are at least above the 5-foot contour. Hazard is low to surrounding bluff property.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Stable, except for occasional shifting and breaching of the inlets spits by heavy seas during storms.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.
OTHER SHORE STRUCTURES: Some 14 wharves and a few duck blinds are located in the creek.

NAVIGABILITY
APPROACHES: Poor. The 6-foot contour is almost ½ mile outside of the inlet, the general depth is about 2 feet, there is no well-defined channel.
INLET: Poor. Shifting shoals and spits.
CREEK: Poor. There is more or less of a channel to vicinity of Hunts Point, with depths of 3 or 6 feet, but there are frequent shoal spots of 1 foot depths. Local information indicates that the creek is filling with sediment over the years; there has been no maintenance.

POTENTIAL USE ENHANCEMENT: Would be costly to dredge and maintain the channel for cruising in and out of the inlet due to the instability of the shoals and inlet spits; creek is presently unpolluted and might be better preserved that way for oyster harvesting, fishing, waterfowl hunting and small-boating within the creek.

C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial–USDA 17May38 ANP22-11, 12, 13.
USAF 30Nov59 AP59-35 R-24 2284;
USAF 1Dec59 AP59-35 R-26 2477.
VaDH 10Apr63 5 065 129 122, 125.
VIMS 22Aug72 NH-2-152, 135;
VIMS 19Oct72 NH-2-208, 105 to 108;
VIMS 18Dec72 NH-2-145;
VIMS 27Dec72 NH-2-175 to 241.
SEGMENT 3, CAPE CHARLES
SUBSEGMENTS A-F
SUBSEGMENT DESCRIPTIONS
ALLEGOOD POND, NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENr 3A (Maps 4A, 4B, 4C)

EXTENT: 6,000 feet (1.1 mi.), from entrance to Old Plantation Creek to Cape Charles City Rear Light.

SHORELANDS TYPE
FASTLAND: Low shore with an elongate pond and creek arm consecutively behind and parallel to beach.
SHORE: Narrow, sand and marl beach with tree stumps and debris.
NEARSHORE: Width intermediate (2,400 ft. av.), with multiple, parallel bars, sand bottom.

SHORELANDS USE
FASTLAND: Unmanaged, wooded in southern half; agricultural in northern half.
SHORE: Occasional beachcombing.
NEARSHORE: Sport fishing and fish traps.

OFFSHORE BOTTOM: Cherrystone Channel parallels shore about 1 mile out with depth of about 20 feet; beyond a 1/2 to 1 mile wide flat, with minimum depths of 11 to 12 feet, shields the area from the NNW and SSW; deep channel 3/4 mile wide, with maximum depths between 50 and 125 feet, borders the flat; and west of this the general depth of the bay is 40 to 45 feet.

WIND AND SEA EXPOSURE: The shoreline trend is NNW - SSE. The fetch from the SSW is 20 miles, WSW is 16 miles, and WNW is 13 miles.

OWNERSHIP: Private.
ZONING: Agricultural.
FLOOD HAZARD: Medium to high. Most land is below the 10-foot contour.
WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.
BEACH QUALITY: Poor in southern half, beach is thin, only marly outcrops in some areas, tree stumps are frequent and beach is littered with woody debris, very narrow. The beach is better in the northern half. It is wider, with more sand, and less debris.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Moderate, noncritical, nearly 3 feet per year.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.
Suggested Action: Low priority, none warranted at present.

OTHER SHORE STRUCTURES: None.
POTENTIAL USE ENHANCEMENT: Low. The narrow beach and high erosion rate would necessitate considerable erosion protective work, e.g., groinfield and nourishment.

C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 17May38 ANP22-11.
USAF 3Nov59 AF59-35 R-24 2284;
USAF 1Dec59 AF59-35 R-26 2477.
VIMS 10Apr73 S 065 129 123;
VIMS 22Aug72 NH-3A-134, 135;
VIMS 10Oct72 NH-3A-29.

SPOIL AREA SOUTH OF CAPE CHARLES HARBOR, NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENr 3B (Maps 4A, 4B, 4C)

EXTENT: 6,000 feet (1.1 mi.), from Cape Charles City Rear Light to the south jetty at Cape Charles Harbor.

SHORELANDS TYPE
FASTLAND: Artificial fill (dredge spoil) backshore area, dunes and low shore behind.
SHORE: Wide, sand beach.
NEARSHORE: Intermediate in width at the south (2,000 ft.) to narrow in the north (1,050 ft.) where it is bordered by the dredged channel to Cape Charles Harbor; multiple, parallel bars, with some less regular, oblique bars at the toe of the beach along most of the length; sand bottom. (Photos NH-3B-137, 138).

SHORELANDS USE
FASTLAND: Unmanaged dunes, wooded to lightly vegetated; agricultural behind over most of the subsegment; industrial, cleared in the northerly 1,000 feet.
SHORE: Limited to occasional beach strollers due to lack of public access.
NEARSHORE: Found nets, little else.
OFFSHORE BOTTOM: The dredged channel to Cape Charles Harbor and Cherrystone Inlet borders the edge of the nearshore area, with a depth of about 18 feet. Seaward of the channel a 6,000-foot wide shoal, with minimum depths of about 4 feet, constitutes a barrier to large waves impinging on the beach. Beyond, the offshore deepens gradually to a maximum of over 100 feet some 15,000 feet (2.8 mi.) off the beach.

WIND AND SEA EXPOSURE: The shoreline trend is NNW - SSW. The fetch from the SW is 20 miles, W in 16 miles, and WW in 13 miles.

OWNERSHIP: Private.
ZONING: Agricultural.
FLOOD HAZARD: Medium. Most land in the subsegment is between 5 and 10 feet, there are no buildings.
WATER QUALITY: Satisfactory over the southern two-thirds of the segment; intermediate over northern third (meets water class II B standards but does not meet shellfish standards).

BEACH QUALITY: Excellent. Beach is wide with clean sand.

PRESENT SHORE EROSION SITUATION
EROSION RATE: None. The beach of the entire subsegment appears to have been made up of dredging spoil, reshuffled by waves and wind, and appears to be quite stable at present, except for some local cutting at the bulge south of the harbor jetty, due probably to wave refraction around the jetties. (Photos NH-3B-34, 35).

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: Type and Number: At the south side of the harbor an earthen jetty (mole), faced with stone, extends about 200 feet out from the general line of the shore; a few auto bodies and other rubbish have been placed sporadically at the edge of the industrial property to curb the erosion there.

Effectiveness: The mole anchors the end of the beach and helps keep the harbor mouth open; the autos and rubbish are essentially ineffective.

Suggested Action: Additional study is needed to determine the exact cause of erosion at the bulge, then corrective measures might be applied; conditions are not critical at present.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: This is a fine beach for recreation, especially with the dune area behind, but improved access is needed.

MAPS: USGS, 7 1/2 Min.Ser. (Topo.), ELLIOTS CREEK and CAPE CHARLES Quad., 1968.
C&GS, #653, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 17May38 ANP22-11;
USDA 13Mar49 ANP2E-138.
USAF 30Nov59 AF59-35 R-24 2284.

CAPE CHARLES HARBOR, NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENT 3C (Maps 4A, 4B, 40)

EXTENT: Area - 34 acres; length - 1/2 mile; perimeter approximately 5,600 feet.

SHORELANDS TYPE
FASTLAND: Low shore, artificial fill.
SHORE: Artificially stabilized - 80%; beach - 20%.
HARBOR: Dredged to 16-19 feet, except to 7 feet at "Harbor of Refuge" at northeast end.

SHORELANDS USE
FASTLAND: Industrial - 25%; commercial - 75%, which includes 2 marinas with berthing for some 50 craft, and 3 boat-launching ramps.
SHORE: Beach is narrow and extremely limited in the subsegment, not suitable for recreation; most shoreline is bulkheaded, providing access to boats over the caprail of the bulkhead or from adjoining piers. Contains 3 boat ramps.
HARBOR: Commercial and pleasure boat traffic and mooring.

OWNERSHIP: Private (approx. 90%), town (approx. 10%).

ZONING: Industrial.

FLOOD HAZARD: Medium. There is very little watershed area draining into the harbor. Principal danger would be from storm surges as most of the city lies between the 5 and 10-foot contours, and damages could be serious.

WATER QUALITY: Intermediate. Meets water class II B standards but not shellfish standards.

BEACH QUALITY: Poor. Narrow and short.

PREVIOUS SHORE EROSION SITUATION
EROSION RATE: None.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: Type and Number: A curved stone jetty at the northside of the harbor entrance, 1,200 feet long; an earthen mole at the south, 200 feet long. Various bulkheads around the periphery of the harbor contain some 4,500 feet of the shoreline and act as dockage for boats.
Effectiveness: Jetty protects the harbor somewhat from waves, also limits sedimentation in the harbor from longshore drift. Bulkheads eliminate most shore erosion.

Suggested Action: No changes recommended at this time.

OTHER SHORE STRUCTURES: Railroad ferry slips on north side of harbor, various finger piers around the harbor.

NAVIGABILITY
APPROACHES: A 2½ mile, well-marked channel, dredged to about 18 feet provides good access to the harbor at all hours.

INLET: Good. Stabilized by the jetties and periodically dredged to 18 feet.

HARBOR: Good. Dredged to 18-19 feet.

NAVIGABILITY
APPROACHES: A 2½ mile, well-marked channel, dredged to about 18 feet provides good access to the harbor at all hours.

INLET: Good. Stabilized by the jetties and periodically dredged to 18 feet.

HARBOR: Good. Dredged to 18-19 feet.

POTENTIAL USE ENHANCEMENT: Harbor is currently well utilized for local industry and commerce. Other than the desirability of eliminating any water pollution, no specific recommendations for change are offered.


PHOTOS: Aerial-USDA 17May38 ANP22-9; USDA 13Mar49 ANP2E-138; USDA 30Nov59 AF59...:35 R-24 2284; VIMS 22Aug72 NH-3C-140; VIMS 18Dec72 NH-3C-141 , . 142.
OWENS LANDING, NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENT 3E (Maps 4A, 4B, 4C)

RETURNS: 4,400 feet (0.6 mi.), from old ferry pier to inlet to Kings Creek.

SHORELANDS TYPE
FAST LAND: Low shore.
SHORE: Sand beach.
NEARSHORE: Intermediate width, sandy bottom with bars toward ferry pier end, grassy toward Kings Creek Inlet, terminates outward in channel into Cherrystone Inlet.

SHORELANDS USE
FASTLAND: Unmanaged - 60%; agricultural - 40%.
SHORE: None apparent.
NEARSHORE: Boating (traversed by channel to Kings Creek).

OFFSHORE BOTTOM: Beyond Cherrystone Channel, which is 12 feet deep in places, the offshore zone shoals to 2 or 3 feet for nearly a mile, then deepens irregularly over the next 2½ miles to about 90 feet out in the bay.

WIND AND SEA EXPOSURE: The shoreline trend is NE - SW. The fetch from the W is 15 miles, and NW is 14 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: Medium. Area behind beach is between 5 and 10 foot elevation, there are no structures at present.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Fair. Narrow, but appears sandy. Grass toward northeast end makes that half less desirable for bathing.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Slight to moderate. Rate not listed in historical survey; appears heavier in the southwesterly quarter of the subsegment.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: Erosion problem is not critical here as there appears to be no active use of the adjacent land or the beach. For conservation of the land, however, the bulkheading might be extended along the backshore from where it terminates at Washington Avenue (Subseg. 3D), to the area where the eelgrass has taken hold near the entrance to Kings Creek.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: Moderate. The whole area north of Cape Charles City could be developed into a large public park. With a continuation of the bulkhead at the back of the beach, plus several groins and fill, an extensive beach could be produced in front of the southwesterly half of the subsegment. The northeasterly half might best be left as it is, as the eelgrass probably helps to stabilize the bottom on the approach to Kings Creek.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CAPE CHARLES Quad., 1968.
C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 17May38 ANP22-8, 9; USDA 13Mar49 ANP2E-137, 138.
USAF 30Nov59 AP59-35 R-24 2284.
VIMS 100ct72 MH-3E-57; MH-3E-104.
KINGS CREEK, NORFOLK COUNTY, VIRGINIA
SUBDIVISION 3F (Maps 4A, 4B, 4C)

EXTENT: Area - 187 acres; length - 1.8 miles.

SHORELANDS TYPE
FASTLAND: Low shore, with a 10 to 15-foot bluff rising from the marsh edge except near the inlet.
SHORE: Fringe and embayed marsh (29 and 26 acres respectively).
CREEK: Main body follows a submerged meander pattern; branches are dendritic.

SHORELANDS USE
FASTLAND: Agricultural.
SHORE: There is an oyster boat landing at the north side of the inlet, 2 marinas on the south side just inside of the inlet, with associated boat ramp. Shore zone farther up the creek is little used except as incidental to landing small boats and being crossed by small, private wharves.
CREEK: There are 23 leased oyster tracts, covering 115 acres; some fishing; waterfowl hunting; small boating and access to the marinas.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: Medium. Most structures, other than wharves and marinas, are above the 10-foot contour; the watershed area is small. The greatest danger is to the marina and oyster boat facilities near the inlet, if high storm tides were to occur.

WATER QUALITY: Satisfactory in spring 1973, but had been unsatisfactory during the winter months in the vicinity of the marinas.

PRESENT SHORE EROSION SITUATION
EROSION RATE: None.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

OTHER SHORE STRUCTURES: The 2 marinas with associated finger piers to accommodate about 140 boats are located just inside the inlet on the south side of the creek. There is a boat-launching ramp at one of the marinas; an oyster wharf is on the north side of the inlet; there are some 10 other private wharves farther up the creek and a few duck blinds.

NAVIGABILITY
APPROACHES: Good. A 5-foot channel, well-marked with lighted and reflector beacons, leads from Cherrystone Channel through the inlet and to the marina area.
INLET: Appears stable. Channel is well-marked.
CREEK: Channel markers extend only to the marinas, but a 5 or 6-foot deep channel extends about two-thirds of the length of the creek.

POTENTIAL USE ENHANCEMENT: For its size and location, the creek appears to be optimally used at present.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CAPE CHARLES and CHERRYTON Quadrs., 1968.
USGS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.
USAF 30Nov59 AP59-35 R-24 2284.
VIMS 10Oct72 NH-3E-3, NH-3P-104;
VIMS 27Dec72 NH-3P-243 to 276, NH-3P-337 to 347.
SEGMENT 4, SAVAGE NECK
SUBSEGMENTS A-F
SUBSEGMENT DESCRIPTIONS
WESCOAT POINT, SAVAGE NECK,
NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENT 4A (Maps 5A, 5B, 5C)

EXTENT: 3,000 feet (0.5 mi.) in 1972, from
Cherrystone Inlet to vicinity of Old Orchard
Point.

SHORELANDS TYPE
FASTLAND: Low shore (sand spit with low dunes,
partly vegetated).
SHORE: Sand beach.
NEARSHORE: Wide with multiple, parallel bars
crossed by oblique sand waves trending both
southwest and northwest.

SHORELANDS USE
FASTLAND: Unmanaged.
SHORE: None.
NEARSHORE: None.

OFFSHORE BOTTOM: The offshore deepens gradually
out into the bay, has a trace of an offshore
bar with a crest depth of 14-15 feet, positioned
6,900 feet (1.3 mi.) out. Intervening
depth is 24 feet.

WIND AND SEA EXPOSURE: The shoreline trend is
N - S. The fetch from the SW is 16 miles, W
is 12 miles, and NW is 20 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High. Storm waves can, no doubt,
wash over the entire spit, and breach it in
weak places, but there are no structures, so
the economic danger is minimal.

WATER QUALITY: Satisfactory. Meets both water
class II B and shellfish standards.

BEACH QUALITY: Good. Medium width, tan sand
beach for the entire length of the beach on
both sides of the spit.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Severe, noncritical. The spit
was 3,900 feet shorter in 1972 than in 1959,
1,700 feet shorter in 1967, giving a regression
rate of 500 or more feet per year, but the
losses probably occur suddenly during storms,
rather than gradually.

SUGGESTED STRUCTURES: None.

SUGGESTED ACTION: None.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: The ephemeral nature
of the spit leads to the recommendation that
the area be left wild. As much as it could serve
as a public reservation for nature study by
those willing to traverse the area on foot.

MAPS: USGS, 7.5 Min. Ser. (Topo.), CAPE CHARLES
Quadr., 1966.
OSGS, #563, 1:40,000 scale, CHESAPEAKE BAY,
Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 17May38 ANP22-8;
USDA 13Mar49 ANP2E-137.
USAF 30Nov59 AF59-35 R-24 2284.
VIMS 10Oct72 NH-4A-40, 41;
VIMS 18Dec72 NH-11-332.

OLD ORCHARD, SAVAGE NECK,
NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENT 4B (Maps 5A, 5B, 5C)

EXTENT: 3,300 feet (0.6 mi.), from opposite Old
Orchard Point to opposite Remus Creek.

SHORELANDS TYPE
FASTLAND: Low shore with a line of dunes at
the back of the beach.
SHORE: Narrow, sand beach.
NEARSHORE: Wide (4,500 ft.), with 1 to 2
parallel bars near the outer boundary; oblique
bars or sand waves occur at the toe of the
beach. (Photo NH-4C-333).

SHORELANDS USE
FASTLAND: Unmanaged, wooded; agricultural
behind.
SHORE: Probably very limited use for local
bathing and strolling.
NEARSHORE: None.

OFFSHORE BOTTOM: The offshore deepens gradually
to 65 feet 4 miles off the beach. An offshore bar
lies 6,700 feet (1.2 mi.) off the beach. Its
crest is at 25-25 feet, the intervening depth
is 34 feet.

WIND AND SEA EXPOSURE: The shoreline trend is
N - S. The fetch from the SW is 16 miles, W
is 12 miles, and NW is 20 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: Medium. All of the fastland area
is above 9 feet; the dunes form a barrier 50
feet or more high along most of the bay front.

WATER QUALITY: Satisfactory. Meets both water
class II B and shellfish standards.

BEACH QUALITY: Fair. Sand is bright and clean,
but beach is narrow.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Severe, noncritical. The spit
was 3,300 feet shorter in 1972 than in 1959,
1,700 feet shorter in 1967, giving a regression
rate of 500 or more feet per year.
ENTHANCED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.
OTHER SHORE STRUCTURES: None.
POTENTIAL USE ENHANCEMENT: Low. The area is too limited in size and the beach too narrow to warrant any public development other than to provide limited access to Wescoat Point.
C&GS, #563, 1:40,000 scale, CHEMPEAKE BAY, Cape Charles to Wolf Trap, 1971.
PHOTOS: Aerial-USDA 17May38 ANP22-7, 8; USDA 15May49 ANP22-157.
USAF 30Nov59 AF59-35 R-24 2284.
VIMS 100ct72 NH-4A-41, NH-4B-42;
VIMS 18Dec72 NH-11-332, 333.

CUSTIS PONTI DUNE AREA, SAVAGE NECK,
NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENT 40 (Maps 5A, 5B, 5C)

EXTENT: 9,800 feet (1.9 mi.), from opposite Reems Creek to an irrigation pond at the beach one-half mile south of Tunksd Beach. Shoreline trends approximately north in the southerly half and northeast in the northerly half.

SHORELANDS TYPE
FASTLAND: Dunes, low shore behind.
SHORE: Medium width sand beach, with one acre of embayed marsh immediately behind the beach at the north boundary of the subsegment.
NEARSHORE: Intermediate width (900 yds.), with one large bar with several parallel discontinuous crests, near to or joining the beach at the north and angling cut toward the southwest (Photos NH-40-333, 334).

SHORELANDS USE
FASTLAND: Undeveloped dunes are 400 to 1,600 feet wide, but with a few summer dwellings in the southerly third; agricultural behind.
SHORE: Limited bathing and strolling.
NEARSHORE: Sport fishing, pound nets.

OFFSHORE BOTTOM: Deepens to 62 feet 4 miles off the beach. The general slope is interrupted by a bar with about 10 feet relief, 1/2 mile off the beach; crest depths are 25-29 feet. Beach is exposed to seas from all westerly quadrants and from the north.

WIND AND SEA EXPOSURE: The shoreline trend is NNE - SSW. The fetch from the NNE is 16 miles, NWW is 17 miles, and NW to WNW is 27 miles.

OWNERSHIP: Private.
ZONING: Agricultural.
FLOOD HAZARD: Low to medium. All structures are in the dunes or behind, and dune relief is 5 to 10 feet immediately behind the beach.
WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.
BEACH QUALITY: Good in southerly two-thirds where the beach is of moderate width, and the sand is clean and bright and plentiful. Poor in the northerly third where the shore is eroding, is narrower and is littered with stumps and woody debris. Sand is very thin here and shell outcrops frequently (Photo NH-40-400).

PRESENT SHORE EROSION SITUATION
EROSION RATE: None in the southerly two-thirds; severe, noncritical, (possibly up to 7 ft./yr.) in the northerly third.

ENTHANCED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.
Suggested Action: None needed in southerly part. In the north the erosion becomes severe, but not critical as no structures are endangered and no action is specifically recommended for the present. Bulkheading and groins might be considered in the future as a southerly extension of necessary protective works in the critical areas to the north (see 4D).
OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: This area has high potential as a preserved natural wild area due to the presence of the high and extensive dunes (Photos NH-40-35, 37). These should be accessible to the public. The beach is good and perhaps limited access could be provided to it through gaps in the dunes.

C&GS, #563, 1:40,000 scale, CHEMPEAKE BAY, Cape Charles to Wolf Trap, 1971.
PHOTOS: Aerial-USDA 17May38 ANP22-7.
USAF 30Nov59 AF59-35 R-24 2284, 2293.
VIMS 100ct72 NH-40-43 to 48;
VIMS 18Dec72 NH-40-58, 333, 334.
Ground - VIMS 2Nov72 NH-4C-42G to 420.
WIND: Private.

OWNERSHIP: Private.

SHORELANDS USE

SHELLFISH: Offshore zone slopes to 60 feet off the Gulf. Topography is fairly simple off the southerly half of the subsegment, without prominent bars or shoals; becomes complex as it widens to the north, with a large bar extending down from the vicinity of Hungars Creek (Photo NH-4D-53), and terminates 1,200 feet off the shore just north of Tankards Beach. The northerly part of this bar is emergent at low tide. Depths of 7-14 feet occur between the bar and the shore. Immediately adjacent to the shore at Smith Beach are about a dozen bars or sand waves extending up to 300 feet out, normal to the shoreline.

SHORELANDS USE

FASTLAND: Residential (mostly seasonal) 50%; seashore 25%; offseas 15%; other 10%.

SHORE: Bathing, beach recreation.

BEACH: Sand beach, narrow to medium width.

BEACH QUALITY: Fair to good. Sand is tan and clean, but beaches tend to be on the narrow side, particularly at high water.

PRESENT SHORE EROSION SITUATION

EROSION RATE: Severe, critical, 7 feet per year according to long term rates, but photo and map evidence of recent years indicates higher rates in some places, possibly up to 20 feet per year.

ENDANGERED STRUCTURES: There are about 60 dwellings along the bluff-front of this subsegment which are to some degree endangered as they are for the most part within 100 feet of the bluff edge. In addition there is the Federal Aviation Administration VOR Station, no more than 150 feet from the bluff, whose geographical position is critical to the air navigation network in the Tidewater area. One dwelling at Tankards Beach has been destroyed during the past autumn by bluff retreat (Photo NH-4D-45G).

SHORE PROTECTIVE STRUCTURES: Tankards Beach: A concrete-slab bulkhead was placed along the bluff in front of the destroyed house in the late sixties. This was flanked and soon destroyed (Photo NH-4D-44G). Prior to 1970, the one-foot plank groins have been placed at about 60 to 70-foot intervals in the summer of 1972 just north of the lost house. They have trapped some sand, but appear to be too low and too short as well as too close together (Photos NH-4D-415 and NH-4D-55). Stone riprap has been placed in front of the road to the edge of the bluff at the VOR site. This has been effective in protecting the end of the road, but was being eroded in the autumn of 1972. Rubble has been placed in the vulnerable places in an effort to stem erosion (Photos NH-4D-416 and NH-4D-55, 59).

Smith Beach: Twenty-five groins constructed of railroad ties placed side by side in up-right rows are located along a mile stretch of the beach south of the inlet to The Gulf. These are completely ineffective. As they are permeable, no sand has been trapped and they have also been flanked at their inner ends (Photo NH-4D-192G). Railroad tie bulkheads have also been tried in this same area with equally disastrous results (Photo NH-4D-202G). Two impermeable groins have been placed at the north end of Smith Beach at the entrance to The Gulf (Photo NH-4D-426). The most southerly has been more effective because it is not permeable. The northerly groin does not appear effective probably because it is too much in the shadow of the first and no sand is permitted to reach it.

Suggested Action: Erosion along this subsegment is critical. A unified approach to solving the problem is needed. This should include construction of impermeable bulkheading along the entire length of the bluff, and groins should be placed appropriately along it and tied solidly to the bulkhead. This will be very costly, and individual owners may not be able to support the whole cost. Governmental assistance will probably be necessary. Greater spacing, added height and increased length of the groins at Tankards Beach would provide a temporary measure of protection there.

OTHER SHORE STRUCTURES: An attempt to build a boat slip on the beach with railroad ties was not particularly successful (Photo NH-4D-56G). Various stairways down the bluff-face are constantly being undermined and in need of repair and moving (Photos NH-4D-59G, 4D-56G).

POTENTIAL USE ENHANCEMENT: The greatest need for the Tankards Beach area is adequate shore erosion protection as discussed above. The area as it is, is probably best suited for summer residences since 50% of the area is already in such use.

MAPS: USGS, 7.5 Min.Ser. (Topo.), WSSCOAT POINT Quarz., 1955; C&GS, 1:50,000 scale, CHESAPEAKE BAY, C&GS, #563, 1:40,000, CHERRY HARBOR, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 17 May 59 AN622-4, 5. USAF 30 Nov 59 AF59-36 R-24 2293. VIMS 100ct 72 NH-4D-49 to 59; VIMS 16 Oct 72 NH-4D-517 to 527;
VIMS 27Dec72 NH-4D-413 to 432.

Ground - VIMS 2Nov72 NH-4D-430 to 619;
VIMS 7Dec72 NH-4D-1960 to 2030;
VIMS 8Mar73 NH-4D-2119 to 2240.
SEGMENT 5, THE GULF
SEGMENT DESCRIPTION
THE GULF, NORTHAMPTON COUNTY, VIRGINIA
SEGMENT 5 (Maps 6A, 6B, 6C)

EXTENT: Area - 161 acres; length - 1.8 miles (main branch).

SHORELANDS TYPE
FASTLAND: Low shore, with a 15-foot bluff rising from the marsh area except in the vicinity of the inlet.
SHORE: Fringe and embayed marsh (26 and 23 acres respectively).
CREEK: Dendritic in form, submerged meander pattern; several small marsh islands occur within the first half mile inward from the inlet; shallow.

SHORELANDS USE
FASTLAND: Agricultural.
SHORE: Appears little used except near the mouth where there are 2 or 3 oyster wharves on the north side, and on the south side below White Cliffs at the north end of Smith Beach, there are approximately a dozen private boat landings.
CREEK: There are 14 leased oyster tracts, comprising 85 acres in The Gulf; there is some small boating, and probably some waterfowl hunting.

OWNERSHIP: Private.
ZONING: Agricultural.
FLOOD HAZARD: High in the vicinity of the entrance, medium within The Gulf to waterfront properties due to possibility of storm surge from the bay. Low to surrounding fastland properties on the bluffs.
WATER QUALITY: Intermediate, late spring of 1973; unsatisfactory particularly in the vicinity of the boat landings and oyster wharves in the previous winter.

PRESENT SHORE EROSION SITUATION
EROSION RATE: None.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.
OTHER SHORE STRUCTURES: There are approximately 15 wharves near the inlet for oyster boats and other private small craft.

NAVIGABILITY
APPROACHES: Poor. There is somewhat of a channel, unmarked, with minimum depth of about 4 feet, running up along the nearshore zone off Tankards and Smith Beaches. Chart #563 indicates less than 1 foot of water just outside the entrance, although Photo NH-5-316, taken at extremely low water in December, 1972, shows a small channel hugging the north side of the inlet.
INLET: Subject to shoaling and shifting bars. Presently a small channel along the north side serves the oyster boats. There are no channel markers.
CREEK: There is an intricate pattern of marshy islands and shoals in the first half mile inside the inlet. The remainder of the creek appears quite shallow.

POTENTIAL USE ENHANCEMENT: The small size and difficult approach make The Gulf unsuitable for marina development. Its present precarious condition, regarding pollution, with over half its area devoted to producing oysters, demands extreme caution in any development project. With its stable, low-bluff shoreline, The Gulf best offers sites along its banks for residential use, provided adequate sewage treatment facilities are included.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CHERRYTON Quadr., 1968.
C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.
PHOTOS: Aerial-USAF 30Nov59 AF59-95 E-24 2293.
VIMS 100ct72 NH-5-100, NH-5-56;
VIMS 18Dec72 NH-5-316;
VIMS 27Dec72 NH-5-425, 434.
OLD TOWN NECK, NORTHAMPTON COUNTY, VIRGINIA
SEGMENT 6 (Maps 6A, 6B, 6C)

EXTENT: 6,500 feet (1.2 mi.), from The Gulf to
the north end of Hungars Beach.

SHORELANDS TYPE
FASTLAND: Low shore, with a 10 to 15-foot
bluff behind the beach; except in the souther­ly 1,500 feet the bluff is behind a 200-
foot wide, low dune area.
SHORE: Alternating narrow, sand beach (3,500
ft.), and wider fringe marsh at "nodes"
(3,000 ft., 3 acres).
NEARSHORE: Wide, with irregular bars and
shoals. Within this zone, at about 3,000
feet off the shore, there is an elongate tidal
flat which fronts the entire segment, ex­tending from off Honeymoon Island at the en­trance to Mattawoman Creek to the south end
of Smith Beach on Savage Neck. Between the
flat and the shore, a channel, ranging be­tween 7 and 16 feet deep, runs up the length
of the segment from the south. At the north
it is reduced to a narrow run only 1 to 2 feet
depth. Seaward of the tidal flat there are
several irregular fingerlike shoals trending
northwest. Other isolated shoals trend north
to northeast.

SHORELANDS USE
FASTLAND: Unmanaged, wooded (south half);
residential (north half).
SHORE: Minimal use for shore recreation.
NEARSHORE: Shellfishing.

OFFSHORE BOTTOM: The bottom slopes moderately
from the 12-foot contour to 45 feet over a
distance of about 7,500 feet. The slope de­creases to form a terrace sloping very gently
to the 48-foot contour over a distance of 9,000
feet. Beyond there the slope steepens sharply
to depths of 70 to 80 feet in a distance of
2,500 feet.

WIND AND SEA EXPOSURE: The shoreline trend is
N - S. The fetch from the SW is 20 miles, W
is 12 miles, and NW is 20 miles.

OWNERSHIP: Private.
ZONING: Agricultural.

FLOOD HAZARD: Low.
WATER QUALITY: Satisfactory. Meets both water
class II B and shellfish standards.
BEACH QUALITY: Fair. Sand is bright and clean;
beach narrow between marshy nodes.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Severe, critical, in the north­erly 1,000 feet (5-6 ft./yr.); to the south
the net is close to zero (cut and fill as the
nodes shift along the beach). Some 700 feet
east of the north point had been cut back between
1943 and 1967. This was a low, probably sandy,
spur pointing toward Honeymoon Island.
ENDANGERED STRUCTURES: None in immediate
danger, but one dwelling is located within
about 100 feet of the bluff in the severe
erosion area.
SHORE PROTECTIVE STRUCTURES: Type and Number:
Two plank groins, impermeable, 60 feet long
and 60 feet apart, were emplaced at Hungars
Beach in November, 1972 by Mr. A. J. Bowden
(Photos NH-6-76G).
Effectiveness: The winter littoral drift is
southerly and the northerly groin had worked
well by the end of the year (Photo NH-6-435),
but the southerly groin had gathered nothing.
In March, 1972 the site was revisited, the
northerly groin remained full and the south­erly one had gathered some sand also, but it
was being flanked at its inner end and the
bluff was continuing to recede at that point
(Photos NH-6-201G, 204G, 205G).
Suggested Action: The entire reach, from the
tip of Hungars Beach to the accretion area to
the south needs protection, probably in the
form of continuous bulkheading or riprap, and
longer, higher groins, more widely spaced and
faster securely to bulkhead.

POTENTIAL USE ENHANCEMENT: Hungars Beach has
been subdivided and will be developed for residences
along the bluff top. Appropriate shore erosion
measures as outlined above should be carried
out to protect the bluff. The southerly low
dune area does not lend itself well to residen­tial development and would better be used
as a public park and recreation area.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CHERRITON Quadr.,
C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY,
Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USAF 30Nov59 AP59-35 R-84 2209,
VIMS 10Oct72 NH-6-56 to 59;
VIMS 16Dec72 NH-6-314, 315;
VIMS 27Dec72 NH-6-435, 456.
Ground - VIMS 2Feb72 NH-6-629 to 849;
VIMS 8Mar72 NH-6-1920 to 2100.
SEGMENT 7, HUNGARS CREEK
SEGMENT DESCRIPTION
HUNGRAS CREEK, NORTHAMPTON COUNTY, VIRGINIA
SEGMENT 7 (Maps 6A, 6B, 6C and 7A, 7B, 7C)

EXTENT: Area - 2,067 acres, including Barlow Creek, Mattawoman Creek, Hungars Creek and its branches along with the combined creek mouth area, limited on the bay side by a line drawn from the north tip of Hungars Beach to the south tip of Great Neck. Length - Hungars Creek, 4.3 miles; Mattawoman Creek, 3.0 miles to the end of the northeast branch; both measurements from the outer boundary of the creek complex.

SHORELANDS TYPE
FASTLAND: Low shore. The creeks and their branches are bounded by low bluffs generally 10 to 15 feet high.
SHORE: Fringe marsh, embayed marsh at heads of creek branches.
CREEK: The Hungars Creek system is dendritic in pattern, with each branch following a submerged meander valley; marsh filling the upper end of each. The creeks are generally shallow with various shoals, and in the lower third of Hungars Creek there are large tidal flats; a few small islands are located in the mouth area.

SHORELANDS USE
FASTLAND: Agricultural.
SHORE: None, except to support a few wharves and for occasional boat landings.
CREEK: There are 116 leased oyster tracts comprising 1,102 acres on the combined creeks. There is some trout fishing and waterfowl hunting and a limited amount of small boating.

OWNERSHIP: Private.
ZONING: Agricultural.

FLOOD HAZARD: High in the vicinity of the inlet, medium within the creek to waterfront properties due to possible storm surge from the bay. Low to surrounding bluff properties. Situation noncritical as there are few structures below 10 feet elevation.

WATER QUALITY: Satisfactory in spring 1973, meets both water class II B and shellfish standards; condition was intermediate in the previous winter.

PRESENT SHORE EROSION SITUATION
EROSION RATE: None, except for the sand islands at the mouth, which shift frequently.
ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.

OTHER SHORE STRUCTURES: There are 14 small wharves on the creeks, serving small private boats, including some oyster boats.

NAVIGABILITY
APPROACH AND INLET: A channel, marked by lighted beacons, enters the mouth of the creek from the southwest, across the nearshore zone. Minimum depths are 7 feet.
CREEKS: The channel continues into Hungars Creek, marked by stakes. It crosses the 6-foot contour off the center of Wilsonia Neck and 4-foot depths continue to just past Sparrow Point. Upper Hungars Creek and Jacobus Creek are quite shallow, with only 1 or 2-foot depths. Barlow Creek and Mattawoman Creek are also both quite shallow and manageable only by skiff.

POSSIBLE USE ENHANCEMENT: The large acreage (over 50% of the combined creek areas) of oyster tracts and the present unpolluted condition of the creek waters recommend caution in any development plans. Lack of beaches on the creeks limits the potential of the area for development of public shoreline recreation facilities, but the bluff topography, with little or no erosion problem recommends the area to residential use.

PHOTOS: Aerial-C&GS 10Mar55 W4338, W4340. USAF 30Nov59 AF59-35 R-24 2293, R-25 2406, 2407. USGS 30Jan67 GS-SWBK-1 1-82, 83, 84. VIMS 100o47z HH-6-59, HH-7-60, 61, HH-7-97 to 101, HH-8A-62 to 66; VIMS 18Dec72 NH-7-175.

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SEGMENT 8, CHURCH NECK
SUBSEGMENTS A-E
SUBSEGMENT DESCRIPTIONS
EXTENT: 2,800 feet (0.5 mi.), from Hungars Creek entrance to juncture of the spit with mainland Great Neck.

SHORELANDS TYPE

FASTLAND: Low shore, a sand spit with low dunes, well-vegetated with small trees above the maximum tide level, marsh grass at lower elevations on the creek side.

SHORE: Mostly fringe marsh about 50 feet wide (approx. 3 acres), some isolated sand beach areas on the bay side.

NEARSHORE: Fishing (trout and flounder); shellfishing.

SHORELANDS USE

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High. The spit is subject to washover from storm waves and it would appear inadvisable to place buildings in the sub-segment.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Poor. There is little sand beach available, its accessibility is poor.

PRESENT SHORE EROSION SITUATION

EROSION RATE: Moderate, noncritical, 2-3 feet per year. The length of the spit has remained quite constant over the last 30 years, but the spit appears to have been slowly shifting laterally into the creek inlet, i.e., as the bay side retreats, the creek side advances. A small island just off the southwest tip of the spit has been eroding at a comparable rate on the bay side, but is not building on the other side. It has been cut in two in the past 4 years.

ENDANGERED STRUCTURES: None.

SUGGESTED ACTION: None.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: The spit should probably be left as a natural study area or restreat. Acquisition by the county is suggested, with the area to be set aside for public use, but with access restricted to pedestrian travel by land or by small boat from the water.


PHOTOS: Aerial-USDA 17May38 ANP22-37, CHESAPEAKE BAY, Wolf Trap to Pungoague Creek, 1971.

SUBSEGMENT 8A (Maps 7A, 7B, 7C) GREAT NECK SPIT, CHURCH NECK, NORTHAMPTON COUNTY, VIRGINIA

SUBSEGMENT 8B (Maps 7A, 7B, 7C) GREAT NECK - LOOPED SPIT AREA, CHURCH NECK, NORTHAMPTON COUNTY, VIRGINIA

EXTENT: 12,000 feet (2.3 mi.), from the base of Great Neck to the north end of the looped spit area, 0.9 mile southwest of the inlet to Westerhouse Creek.

SHORELANDS TYPE

FASTLAND: Low shore, with a 5-foot scarp back of the beach, and with some low dunes in the southerly quarter.

SHORE: Narrow sand beach in the northerly three-quarters; mostly fringe marsh, averaging 50 feet wide (approx. 3 acres), in the southerly quarter. This is a complex shore area with a series of looped spits in the northern part, which apparently start out from the beach at the north and grow south just off the beach and then turn back in against the beach, enclosing a narrow lagoon or series of lagoons (Photos NH-6B-66 to 68). Both incomplete and complete phases are present in the subsegment. After the lagoons are enclosed, marsh grass grows into them, tending to fill them in. Comparisons with older photos and maps (1938 and 1943) suggest that these looped spits and lagoons are a repeating phenomenon, starting at the north and slowly shifting southward. Apparently there are cycles of accretion followed by erosion, so that former spits and lagoons are eliminated from north to south before the next cycle starts.

In the southerly quarter the shore is irregularly serrate, with projecting nodes apparently accreting and grassed over, and intervening scalloped areas of sand beach backed by moderately eroding low bluffs (Photos NH-8B-115G, 116G). These nodes may also be shifting south with time, giving rise to alternating cycles of accretion and erosion.

NEARSHORE: Intermediate width (north) to wide (south). There are several irregular, elongated bars, more or less parallel. The bars nearest shore start from the beach and extend southward at an acute angle to the shoreline in an on echelon formation. Their crest lines emerge as tidal flats at low water. The growth and migration of the looped spits is probably intimately associated with the evolution of...
these bars (see C&GS Photo W4338). The more seaward bars are progressively deeper seaward, with reliefs of about 4 feet. They appear to be composed primarily of sand.

**SHORELANDS USE**

**FASTLAND:** Agricultural, except just above Great Neck where a residential development is being started (about 25% of the area).

**SHORE:** Limited use at present; will become more used for shore recreation as the development grows.

**NEARSHORE:** Sport fishing, pound nets.

**OFFSHORE BOTTOM:** There is a gently sloping terrace from the 12-foot contour out to the 30-foot contour, 2 miles more gentle slope down to 56-60 feet at the bottom of the bay about 4 miles offshore.

**WIND AND SEA EXPOSURE:** The shoreline trend is N - S. The fetch from the SW is 24 miles, W is 13 miles, and NW is 21 miles.

**OWNERSHIP:** Private.

**ZONING:** Agricultural.

**FLOOD HAZARD:** None. Bluff is high enough to preclude any flooding of residential areas. Lagoon areas associated with the looped spits however, are subject to high-water flooding.

**WATER QUALITY:** Satisfactory. Meets both water class II and shellfish standards.

**BEACH QUALITY:** Fair. The beach is narrow but is generally adequate for limited bathing. There is frequently much algal or grass detritus on the beach in the scalloped areas (Photo NE-82-1219) and woody detritus on the very narrow beaches in the areas of highest erosion (Photo NE-82-1159). Beaches on the looped spits tend to be fairly good.

**PRESENT SHORE EROSION SITUATION**

**EROSION RATE:** Moderate, noncritical, 1.5 feet per year, between beach nodes in the southerly area, but generally accreting at about the same rate in looped spit area to the north.

**ENDANGERED STRUCTURES:** None.

**SHORE PROTECTIVE STRUCTURES:** None.

**Suggested Action:** Leave as is. There are presently no endangered structures and it appears that erosion alternates with accretion resulting in no appreciable long-term change.

**OTHER SHORE STRUCTURES:** None.

**POTENTIAL USE ENHANCEMENT:** The bluff area, particularly that behind the looped spits is an attractive location for residential use. The beach could be cleaned to be more attractive, but care should be exercised not to disturb the marsh grass areas which hold the shoreline. Because of the uniqueness of the looped spits it is suggested that they be left unaltered.

**MAPS:** USGS, 7.5 Min.Ser. (Topo.), PRANKTOWN Quadr., 1943, 1960.

**PHOTOS:** Aerial-USDA 17May38 ANP22-37, 39.


**VIMS 10Oct72 NH-81-65 to 69.

**Ground - VIMS 9Nov72 NH-81-1056 to 1256.

**SOUTH OF WESTERHOUSE CREEK, CHURCH NECK, NORTHAMPTON COUNTY, VIRGINIA**

**SUBSEGMENT 8C (Maps 7A, 7B, 7C)**

**EXTENT:** 4,700 feet (0.9 mi.), from 0.9 mile southeast of Westerhouse Creek entrance to Westerhouse Creek entrance.

**SHORELANDS TYPE**

**FASTLAND:** Low shore, including a small, curved reentrant from the bay near the northern end of the subsegment, probably a former branch of Westerhouse Creek. A 5 to 10-foot bluff occurs directly behind the beach.

**SHORE:** Narrow sand beach, fringe marsh (1 acre) bordering the reentrant.

**NEARSHORE:** Intermediate width (1,100 yds.); over half the width is 3 feet or less deep with irregular, subparallel sand bars and normal to oblique sand waves which extend off the toe of the beach.

**OWNERSHIP:** Private.

**ZONING:** Agricultural.

**FLOOD HAZARD:** None. There is a low bluff along the entire subsegment which protects the fastland from storm surges.

**WATER QUALITY:** Satisfactory. Meets both water class II and shellfish standards.

**BEACH QUALITY:** Fair. Beach is relatively narrow, probably thin, sand appears good.
WESTERHOUSE CREEK, CHURCH NECK, NORTHAMPTON COUNTY, VIRGINIA

SUGGESTED SD (Maps 7A, 7B, 7C)

EXTENT: Area - 155 acres. Length - main arm to the southeast, 1 mile, two others, 0.7 mile, all measured from the inlet.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

POTENTIAL USE ENHANCEMENT: The creek has a very pleasant aspect for residential use on the bluff, but waste disposal must be carefully judged so water quality of creek remains high. It does not lend itself well to development for yachting or commercial fishing.

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

USGS 10Mar55 W4340.
USGS 30Jan67 GS-SWBK-1 1-1.
VIMS 100ct72 NH-BD-69, NH-BD-70 to 72.

NAVIGABILITY: Poor. APPROACHES: No channel; sand bars and tidal flat are all shallower than 6 feet for a distance of 2,700 feet off the inlet.
INLET: Tidal delta area; shifting shoals.
CREEK: Shallow.
SHOOTING POINT, CHURCH NECK, NORTHAMPTON COUNTY, VIRGINIA
SUBSEGMENT 8E (Maps 7A, 7B, 7C)

EXTENT: 6,500 feet (1.2 mi.), from Westerhouse Creek to the tip of Shooting Point.

SHORELANDS TYPE
FASTLAND: Low shore, with 10 to 15-foot bluffs directly behind the beach, interrupted by "truncated creeks". The backshore area adjacent to the creeks is low and supports a low foredune for a distance of about 1,500 feet.
SHORE: Narrow sand beach, in places with stumps and recent erosional debris.
NEARSHORE: Intermediate width (1,050 yds. av.), containing multiple bars and sand waves in various orientations, almost reticulate pattern (see Photo C&GS W4340). Occasional tidal flats occur and there are also 2 low, grassy islands lying some 200 yards seaward of the point.

SHORELANDS USE
FASTLAND: Agricultural.
SHORE: None, except occasional beachcombing.
NEARSHORE: Some sport fishing.

OFFSHORE BOTTOM: Bottom contours fan out to the north, the shallower terrace (from 12 to 30 ft.) gently sloping, with some more or less longitudinal depressions, about 5,300 yards wide on an average. Then fairly steep slope to 62 feet beyond in the bay channel.

WIND AND SEA EXPOSURE: The shoreline trend is NNE - SSW. The fetch from the WSW is 15 miles, WNW is 20 miles, and NW is 25 miles.

OWNERSHIP: Private.
ZONING: Agricultural.

FLOOD HAZARD: Low. Most of the subsegment is protected by the bluff. Water from storm surges might flood over into the "truncated" creek areas, but these are small, are not developed and are surrounded by moderate slopes.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Fair. Sand is bright, medium-fine quartz, but the beach is narrow. It is somewhat wider in the middle of the subsegment in the "truncated" creek areas and toward the south end. Near the northern tip erosion is greater and there are stumps and debris on the beach. At the very north and the beach widens and there are concentric low dunes and marsh grass around the point.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Moderate, noncritical, 2-3 feet per year. Erosion appears to be most severe at the northerly end, near Shooting Point (Photos NH-8E-89, 91, 92). Erosion of the bluff results in about 60% of the eroded material remaining on the beach or in the nearshore zone for an indefinite period, while about 20% (silt and clay fraction) is carried off in suspension (note water discoloration in Photos NH-8E-85, 87).

ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.
Suggested Action: Erosion is moderate to severe here, but not critical as no buildings are present. If development is desired, extensive bulkheading and groinfields will no doubt be necessary. For the present no action is recommended, except, perhaps to monitor the rate of loss, as there are other more critical problems in the county.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: The overlook from the bluff along the shore and around the "truncated" creeks is quite attractive and would lend itself to development for homesites. However, the erosion problem is so serious that considerable expense will be involved in protecting the area. Therefore the present potential is marginal.

C&GS, #564, 1:40,000 scale, CHESAPEAKE BAY, Wolf Trap to Pungoteague Creek, 1971.
PHOTOS: Aerial-USDA 17May38 NH-822-39, 41.
C&GS 10Mar59 W4340, W4342, W4402.
USGS 30Jun67 GS-SWIX-1 1-1.
VIMS 100ct72 NH-8E-73, NH-8E-74, 75, 76.

Ground - VIMS 9Nov72 NH-8E-85G to 93G.
SEGMENT 9, NASSAWADOX CREEK
SEGMENT DESCRIPTION
NASSAWADOX CREEK, NORTHAMPTON COUNTY, VIRGINIA
SEGMENT 9 (Maps BA, BB, BC)

EXTENT: Area - 3,193 acres, including Church Creek, Warehouse Creek, Holly Grove Cove and the main body of the creek plus its smaller unnamed branches. Length - 6½ miles along the main course of the creek from the mouth to where it becomes primarily marsh.

SHORELANDS TYPE
FASTLAND: Low shore, generally with a 10 to 15-foot bluff or steep slope rising from the marsh edge, dissected by several branches and many subbranches of the creek.
SHORE: Fringe and embayed marsh (100 and 280 acres respectively).
CREEK: Dendritic pattern of submerged mean-der valleys; many irregular shoals and grassy islands in the lower third of the creek.

SHORELANDS USE
FASTLAND: Agricultural, 95%; residential, 5%.
SHORE: None, except for boat landings, support for some 2 dozen wharves and boathouses.
CREEK: Shellfishing, there are 168 leased oyster tracts covering 1,295 acres; fishing; waterfowl hunting; boating.

OWNERSHIP: Private.
ZONING: Agricultural.
FLOOD HAZARD: High near the inlet, medium within the creek due to possible storm surge, for waterfront properties. Low to properties on the surrounding fastland bluffs. Few structures are below the 10-foot contour.
WATER QUALITY: Satisfactory. Meets both water class II Band shellfish standards.

PRESENT SHORE EROSION SITUATION
EROSION RATE: No erosion for most of the creek except for moderate erosion on point just east of Nassawadox Point (at Rte. 677). Presence of bulkheading suggests that there has been erosion at the point and the unprotected areas do show erosion. This local cutting is due, no doubt, to current action, as the main channel of the creek sweeps against the shore there.

ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: Type and Number: There is about 1,200 feet of bulkheading, with 2 or 3 attached groins, at the end of the point east of Nassawadox Point.
Effectiveness: Most of the bulkheading appears to be in good order, but some is in bad shape, due perhaps to faulty construction. The groins do not appear to be effective.

Suggested Action: Repair decrepit bulkheads, and complete bulkheading along those parts of the point where none was originally installed. Unless the channel is diverted, groins probably will be unsuccessful, as the swift current is close to the shore.

OTHER SHORE STRUCTURES: There are about 2 dozen wharves and boathouses on the creek and its branches. There are 2 boat-launching ramps, one at Bayside (Rte. 615) on the north side of the creek, and the other is at Bayford, Elliette Neck, on the south side of the creek.

NAVIGABILITY: Poor at present.
APPROACHES: There is a buoy and a lighted beacon at the entrance to the creek, but depths indicated on the chart are only 1 or 2 feet, and there are tidals flats. There appears to be no well-defined channel.
INLET: There is a channel with depths ranging between 5 and 15 feet, but it is very crooked and narrow between shoals and tidal flats. There are deep holes beyond, and much of the creek-bed is 3 feet or more deep, but there are numerous shoals to be avoided. There are no official channel markers within the creek. Navigation should be only by one quite familiar with the creek.

POTENTIAL USE ENHANCEMENT: With some dredging and with more aids to navigation, the creek might be made accessible to moderate sized craft. However, as nearly half of the area of the creek-bed is held by leased oyster tracts, and as the waters are unpolluted at present, the trouble of opening the creek to more extensive boating might not be worth the risk of possible pollution and loss of the shellfish. In common with the other creeks of the area, Nassawadox Creek, with its bluffs, offers attractive vistas for homesites along its shores.

SEGMENT 10, OCCHOHANNOCK NECK
SUBSEGMENTS A-D
SUBSEGMENT DESCRIPTIONS
WIND AND SEA EXPOSURE: The shoreline trend is WNW is 18 miles, and NNW is 40 miles.

FLOOD HAZARD: Low. Aside from beach structures near the beach, there are some elongate shoals or bars in toward the nearshore zone, and elongate swales of features roughly parallel to the shore. The slope from 30 to 54 feet is steeper (only by 400 yds. wide), then there is a gentler slope to the bay channel bottom at 60 to 63 feet.

OFFSHORE BOTTOM: Terraced, with the bottom greatly sloping from 12 feet out to 30 feet about 6,500 yards (3.4 mi.) off the beach. There are some elongate shoals or bars in toward the nearshore zone, and elongate swales on the outer part of this terrace, both sets of features roughly parallel to the shore. The slope from 30 to 54 feet is steeper (only by 400 yds. wide), then there is a gentler slope to the bay channel bottom at 60 to 63 feet.

WIND AND SEA EXPOSURE: The shoreline trend is WNW is 18 miles, and NNW is 40 miles.

FLOOD HAZARD: Low. Aside from beach structures near the beach, there are some elongate shoals or bars in toward the nearshore zone, and elongate swales of features roughly parallel to the shore. The slope from 30 to 54 feet is steeper (only by 400 yds. wide), then there is a gentler slope to the bay channel bottom at 60 to 63 feet.

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WIND AND SEA EXPOSURE: The shoreline trend is WNW is 18 miles, and NNW is 40 miles.

FLOOD HAZARD: Low. Aside from beach structures near the beach, there are some elongate shoals or bars in toward the nearshore zone, and elongate swales of features roughly parallel to the shore. The slope from 30 to 54 feet is steeper (only by 400 yds. wide), then there is a gentler slope to the bay channel bottom at 60 to 63 feet.

OFFSHORE BOTTOM: Terraced, with the bottom greatly sloping from 12 feet out to 30 feet about 6,500 yards (3.4 mi.) off the beach. There are some elongate shoals or bars in toward the nearshore zone, and elongate swales on the outer part of this terrace, both sets of features roughly parallel to the shore. The slope from 30 to 54 feet is steeper (only by 400 yds. wide), then there is a gentler slope to the bay channel bottom at 60 to 63 feet.
PHOTOS: Aerial-USDA 6May 38 ANP17-60; USDA 17May38 ANP22-41; C&GS 10Mar55 W4342, W4400, W4402; USAF 30Nov59 AF59-35 R-25 2406; USAF 9Dec59 AF59-35 R-30 3007; VaDH 10Apr63 2065 129 048; USGS 30Jan67 GS-SWBR~1 1-1, 2; VIMS 100ct72 NH-10A-77 to 81; VIMS 18Dec72 NH-10A-283 to 291; VIMS 27Dec72 NH-10A-440 to 459.

NORTH OF DOWNINGS BEACH, OCCOHANNOCK NECK, NORTHAMPTON COUNTY, VIRGINIA

SUBSEGMENT 10B (Maps 9A, 9B, 9C)

EXTENT: 7,000 feet (1.3 mi.), from Downings Beach access road to the outlet of "V" ponds, ½ mile south of Battle Point.

SHORELANDS TYPE

FASTLAND: Low shore, with a 5 to 10-foot bluff directly behind the beach, except for a marshy area (5 acres) just north of Downings Beach, and another at the outlet of the "V" ponds (16 acres).

SHORE: Relatively narrow sand beach, wider near Downings Beach.

NEARSHORE: Wide (av. 2,100 yds.), sandy bottom, with 6 shallow, parallel bars within the first 100 yards from the shoreline. On the outer three-quarters of the zone there are deeper parallel bars capped with oblique sand waves. A channel down to 13 feet divides the 2 subzones. The nearshore zone becomes wider to the north.

SHORELANDS USE

FASTLAND: Agricultural (95%); recreational (5%), there is a campground just north of Downings Beach.

SHORE: Little, except for occasional beachcombing and limited shore recreation.

NEARSHORE: Pound nets and sport fishing.

OFFSHORE BOTTOM: The terraced appearance of the offshore zone to the south disappears and the bottom slopes gradually, with some irregularities, to 60 feet about 4 miles off the shore.

WIND AND SEA EXPOSURE: The shoreline trend is NNW - SSW. The fetch from the NWW is 14 miles, NWW is 17 miles, and NW is 40 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: Low. Most of the land is above the 5-foot contour. Storm surge flooding of the small marshes would not be serious as there are no permanent structures.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Good to fair. For the first 2,000 feet above Downings Beach the beach is of intermediate width, the sand is clean and bright. Erosion is more active to the north, the beach is narrow and thin, and there is woody debris on much of the beach.

PRESENT SHORE EROSION SITUATION

EROSION RATE: Severe, critical. The recent T.I.M.S. historical study indicates an erosion rate of 5 feet per year.

ENDANGERED STRUCTURES: There is one seasonal or weekend dwelling at about the middle of the subsegment. It is located between 20 and 30 feet from the edge of the bluff.

SHORE PROTECTIVE STRUCTURES: Type: There is a low plank bulkhead about 150 feet long, built in late 1972 out on the beach in front of the previously mentioned dwelling (Photos NH-10B-460, NH-10B-167G, 168G, 169G). At the time of observation (Dec., 1972) the planks were low and there was no backfill. It was not tied back securely to the bluff at either end. Evidence of former ineffective post groins remains behind the new structure.

EFFECTIVENESS: Poor, as it stood in December, 1972. The planks of the bulkhead should have been built higher and it should have been backfilled, especially as the planks were nailed to the backs of the posts and incoming waves might pound them loose. If the ends are not tied back to the bluff, flanking will occur and the structure will be undermined.

Suggested Action: Except for improvements to the bulkhead discussed above, no action is recommended at present, as the land elsewhere is undeveloped. If development occurs in the future, a groin-field covering almost the whole length of the subsegment might be recommended. Individual groins are not recommended because of likely damage to property downdrift of the groin.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: As a future shoreside residential area, the subsegment has attractive aspects, provided that adequate, unified shore erosion protection is implemented at that time.
BATTLE POINT, OCHOHANNOCK BEACH,
NORTHAMPTON COUNTY, VIRGINIA

SUBSEGMENT 100 (Maps 9A, 9B, 9C)

EXTENT: 5,000 feet (0.9 mi.), from the outlet of the MY ponds to the outlet of the pond at the north end of Battle Point community.

SHORELANDS TYPE
FASTLAND: Low shore with a 5-foot scarp at the back of the beach.
SHORE: Narrow sand beach; a small marsh area (1 acre) at Peaceful Beach Campground.
NEARSHORE: Wide (2,100 yds. av.), sandy bottom, shallow parallel bars just off the beach; deeper and wider bars, capped with oblique sand waves, on the outer part; and a channel 8 to 10 feet deep between.

SHORELANDS USE
FASTLAND: Recreational (campground) - 65%; residential - 35%.
SHORE: Beach recreation where possible.
NEARSHORE: Fishing (pound nets and sport fishing).

WIND AND SEA EXPOSURE: The shoreline trend is NNE - SSW. The fetch from the WSW is 14 miles, WNW is 17 miles, and NNW is 50 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: Medium. The 5-foot contour quite closely follows the beach, although there are lower areas in the campground, but under exceptional conditions such as storm surges and heavy northwest seas, the water could overtop the scarp and flood much of the residential and camping areas.

WATER QUALITY: Satisfactory. Meets both water class II and shellfish standards.

BEACH QUALITY: Poor. The beach is very narrow due to rapid erosion and it is frequently debris laden (Photos NH-10C-178G, 181G, 190G).

PRESENT SHORE EROSION SITUATION
EROSION RATE: Severe, about 5 feet per year, along the entire subsegment, which results in a considerable loss of real estate where the beach has not been protected, particularly in the campground areas.

ENDANGERED STRUCTURES: There are 4 dwellings, one very close to the shore, at Battle Point, just north of access road, which might be considered endangered, although, at present, they are protected by riprap.

SHORE PROTECTIVE STRUCTURES: Type and Number: Stone riprap has been placed around and between two groin-like earthen structures at the end of the access road to Battle Point (Photos NH-10C-464, 465). With a small interruption just to the north, this type of protection has been continued to the north along the shore for a 100 feet or so. Then there is a wooden bulkhead cut on the beach running between 200 and 300 feet north of the riprap, and then another 200 feet of stone and debris riprap. More riprap has been emplaced near the north end of the subsegment.

Wooden bulkheading, together with 5 or more plank groins have also been placed near the north end of Battle Point area.

Effectiveness: The riprap at the end of the access road appears quite effective, as it does along various parts of the shore to the north. The bulkheading in the middle of the area is probably too new to determine its usefulness. It should, however, be backfilled. It appears that the north end of the beach was left unprotected longer than that to the south and consequently, deep cuts have been made (Photos NH-10C-187G, 190G). Where there is riprap the land seems to be holding, but the groins and bulkheading which have been placed since the original deep cutting do not seem to be effective, and some are badly damaged, probably by flanking around their ends (Photos NH-10C-1876, 1906).

Suggested Action: Shore property here is of sufficiently high value that a unified plan of protection should be developed and carried out for the whole of the subsegment including the campground area at the south end which at present is completely unprotected. Stone
riprap has been effective here, but might be too expensive for the whole 5,000 feet of shore front. Further, it alone will not build up the beach. Therefore, a groin-field also needs to be developed. It would appear that a plank bulkhead, solidly backed, with an appropriately spaced field of plank groins might be the best method of overcoming the problem.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: As a seasonal shoreline recreational area, with both permanent and transient capabilities, the Battle Point subsegment is already developed to near capacity, but could be greatly improved by coastal protection measures as outlined above.

SPARROW POINT, OCCOHANNOCK NECK, NORTHAMPTON COUNTY, VIRGINIA

SUBSEGMENT 1D (Maps 9A, 9B, 9C)

EXTEND: 7,300 feet (1.4 mi.), from the north end of the Battle Point community to Sparrow Point.

SHORELINES TYPE

FASTLAND: Low shore gently rising toward the interior of Occohannock Neck from a 5-foot scarp along most of the length of the backshore.

SHORE: Narrow to medium width sand beach; occasional fringe and embayed marsh (6 and 7 acres respectively).

NEARSHORE: Wide (av. 2,600 yds.), sandy bottom with multiple, approximately parallel bars and oblique sand waves near the beach, irregular shallows on the bar in the area where it is crossed in a southwesterly direction by a buoyed channel to Occohannock Creek.

SHORELINES USE

FASTLAND: Unmanaged, wooded.

SHORE: None.

NEARSHORE: Sport fishing, boating.

OFFSHORE BOTTOM: Slopes gradually to the bay bottom at about 57 feet, 9,500 yards (4.7 mi.) off the beach.

WIND AND SEA EXPOSURE: The shoreline trend is NNE - SSW for two-thirds of the length of the subsegment, then N - S. For the first two-thirds the fetch from the WSW is 15 miles, WNW is 19 miles, and NNW is over 50 miles. For the last one-third the fetch from the SW is 30 miles, W is 16 miles, and NW is 22 miles.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: Medium, noncritical. Most of the fastland, other than the swampy areas, is higher than 5 feet above mean sea level and there is no development in the area.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: Fair to poor. There are medium width beaches at both the middle and the south end of the subsegment, a total length of about 1,800 feet. Elsewhere the beaches are narrow. Where the beach is of usable width, the sand is bright and clean.

POTENTIAL SHORE EROSION SITUATION

EROSION RATE: The erosion rate ranges from none at the turn in the shoreline, to moderate, noncritical, in the southern part of the subsegment, to severe, noncritical (6 ft./yr.) in the Sparrow Point area (compare Photos USDA AN021-1 and USGS 1-3). At the tip of the point the loss averaged 12 feet per year between 1958 and 1971.

ENDANGERED STRUCTURES: None. The area was not visited on the ground, but there appear to be no structures near the shore in this subsegment.

SHORE PROTECTIVE STRUCTURES: None.

Suggested Action: Because of the lack of development in the area at present, and because of expense required to stem the erosion, no action is recommended at this time.

OTHER SHORE STRUCTURES: None.

POTENTIAL USE ENHANCEMENT: If, in the future, population pressures in the northern part of the county require, the beach area at the middle of the subsegment could easily be developed into a public recreation site, with a length of 1,500 to 2,000 feet.

The beach at the southerly end could likewise be developed to serve the residents of the Battle Point community.


SEGMENT 11, CHERYSTONE INLET
SEGMENT DESCRIPTION
CHEBRYSTONE INLET, NORTHAMPTON COUNTY, VIRGINIA

SEGMENT 11 (Maps 5A, 5B, 5C)

EXTENT: Area - 1,706 acres; length - 4 miles (main body), with 4 branches 1/2 to 3/4 mile long.

SHORELANDS TYPE

FASTLAND: Low shore.

SHORE: About 90% marsh, fringe along the creek shore (41 acres), embayed at the heads of the various branches (347 acres); 10% narrow sand beach.

CREEK: Main body follows a submerged meander pattern, branches are dendritic; there are numerous and varied shoals in the creek.

SHORELANDS USE

FASTLAND: Agricultural primarily (95%), a little residential at Cherrystone and some recreational at Cherrystone Campground (5%).

SHORE: Mostly untouched, except where it is crossed by a few small boat landings and about 15 wharves. One small man-made beach (200 ft.) between short groins has recently been installed at Cherrystone Campground for bathing.

CREEK: There are 41 leased oyster tracts, comprising 1,486 acres (about 86% of the creek bed). There is one oyster wharf in poor condition, some boating occurs but there are no marinas. There is some fishing and waterfowl hunting.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High in the lower half of Cherrystone and some recreational at Cherrystone Campground (95%).

STORE: Mostly untouched, except where it is crossed by a few small boat landings and about 15 wharves. One small man-made beach (200 ft.) between short groins has recently been installed at Cherrystone Campground for bathing.

CREEK: There are 41 leased oyster tracts, comprising 1,486 acres (about 86% of the creek bed). There is one oyster wharf in poor condition, some boating occurs but there are no marinas. There is some fishing and waterfowl hunting.

NAVIGABILITY: Fair for small craft drawing 5 feet or less. A channel 7 feet deep extends into the inlet from the marked channel to Kings Creek for 2 miles to the vicinity of Cherrystone. Four or five-foot depths occur in the channel for another half mile to the Eyre Hall Creek vicinity. The channel is presently unmarked but could be marked with little difficulty. Outside the channel depths are about 2 feet, with frequent shoals to 1 foot.

BEACH QUALITY: Except for the new, small, artificial beach, the few stretches of beach in the inlet are very narrow and generally littered with debris of active erosion.

 critiques of the editorial team.
MILL CREEK, MAGOTHY BAY, NORTHAMPTON COUNTY, VIRGINIA
SEGMENT 12 (Maps 2A, 2B, 2C and 11A, 11B, 11C)

EXTENT: 33,000 feet (6.2 mi.), along the marsh-faestland boundary, from Wise Point to Cushmans Landing.

SHORELands TYPE
FASTLAND: Low shore with a very gentle gradient of about 25 feet per mile.
SHORE: Extensive marsh, 32,100 feet long averaging 2,000 feet wide (766 acres); medium width sand beach, 900 feet long, at Wise Point.
NEARSHORE: Very shallow; Magothy Bay, averaging about 1-1/2 miles wide, extends between the marsh edge of the segment and the marsh islands (Mockhorn Island, Big Creek Marsh) to the east. The Intracoastal Waterway, with a controlling depth of 5 feet, passes through the nearshore zone.

SHORELands USE
FASTLAND: A military reservation occupies 10,800 feet of shorefront (33%); agricultural land occupies 1,500 feet (5%); the remaining 20,700 feet of frontage (62%) is unmanaged, primarily wooded.
SHORE: The marsh area between Wise Point and Raccoon Island is crossed by 1-1/2 miles of dredged channel of the Intracoastal Waterway. There are small boat facilities at the edge of the waterway near Raccoon Creek at the Cape Charles Air Force Station, including piers, moorings, and a ramp (Photos NH-12-150 and 481), but these are presumably under military control. Another facility is located at Dixon's Dock on the Intracoastal Waterway canal, which appears to be groins; suggest some erosion on the northerly exposure, but cursory examination of aerial photographs since 1938 reveals no significant changes. The area was inaccessible for ground visit.

PRESENT SHORE EROSION SITUATION
EROSION RATE: There is no apparent erosion in the segment. The marsh shoreline appears stable, and the small sand beach area at Wise Point shows a small amount of accretion. Some structures on Holly Bluff Island, across from Dixon's Dock on the Intracoastal Waterway canal, which appear to be groins, suggest some erosion on the northerly exposure, but cursory examination of aerial photographs since 1938 reveals no significant changes. The area was inaccessible for ground visit.

ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: Aerial photographs (NH-12-149 and 150) show 3 or 4 groin-like structures on the north shore of Holly Bluff Island, and there may also be a short stretch of bulkhead on the beach, together with some fencing. It was not possible to determine whether these structures had been effective in gathering sand. The bulkheads at Cushman's Landing are in a deteriorating condition and the whole facility appears to be abandoned.

OTHER SHORE STRUCTURES: There is a boat ramp at Wise Point. There are small boat piers at Racoon Creek and Dixon's Landing, both on the Intracoastal Waterway canal. There are fences on the beach at the north side of Holly Bluff Island. A concrete pier and building at Cushman's Landing are abandoned and deteriorating.

OWNERSHIP: Federal - 33%, Private - 67%.
ZONING: Agricultural.
FLOOD HAZARD: High over the marsh areas, noncritical because of lack of structures. Medium in the area of the Air Force Station; with a major flood, situation might become serious.
WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.
BEACH QUALITY: There is less than 1,000 feet of fair sand beach in Segment 12 right at Wise Point, but access is controlled by the military reservation. No other beaches occur in the segment.

POTENTIAL USE ENHANCEMENT: Low. There are no beaches of any consequence in the segment, and the shellfish industry (shucking and packing) seems to have failed. The low-lying character of the Fastland, fronted by marshes, makes it less desirable, in general, for homesite development than the Chesapeake Bay shore areas.

MAPS: USGS, 7.5 Min. Ser. (Topo.), PISHERMANS ISLAND and TOWNSEND Quadrs., 1968.
C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

Ground - VIMS 16Apr73 NH-12-2510 to 2530.
SEGMENT 13, DUNTON COVE
SEGMENT DESCRIPTION
DUNTON COVE, MAGOTHY BAY - MOCKHORN CHANNEL, 
NORFOLK COUNTY, VIRGINIA 
SEGMENT 13 (Maps 11A, 11B, 11C)

EXTENT: 21,600 feet (4.1 mi.), along the marsh-fastland boundary, from Cushmans Landing to the south side of Marion Scott Cove.

SHORELANDS TYPE
FASTLAND: Low shore with a very gentle gradient at the south (25 ft./mi.), steepening a little to about 25 feet per half mile at the north.

SHORELANDS USE
FASTLAND: A belt of unmanaged woodland, averaging 1,200 feet wide, extends along about 96% of the fastland-shore boundary. Agricultural land lies behind this. The remaining 4% is occupied by agricultural land reaching the shore or open creek inlets. A camping area is being developed near the shore east of Capeville.

SHORE: The marshes are largely undeveloped and are used for hunting, shellfishing and fishing. Near the south end of the segment, in the vicinity of Townsend and Magothy, inlets through the marsh were dredged previous to 1938 (see Photo ARP22-23). These are Bulls Landing and Steelmans Landings. There is a limited amount of shellfish handling (oysters and crabs) at both landings. Steelmans Landings is in better repair at Steelmans Landing are in poorer condition (Photo NH-13-254G), but are not critical to the protection of existing buildings. In general the bulkheads are in better repair at Steelmans Landing, and here the boat slip is lined on both sides by bulkheading (Photos NH-13-257G to 259G). In view of lack of erosion and little use, there is no need for action at present.

OTHER SHORE STRUCTURES: One recently enlarged drainage canal crosses the marsh due east of Capeville. No other structures were noted.

POTENTIAL USE ENHANCEMENT: Low. Low-lying fastland subject to storm flooding.

USGS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 17May38 ARP22-23, 25, 56, 57.

nel. Controlling depth in the area is 6 feet.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High over the marsh areas, particularly if a storm surge occurred close to time of high water, but not critical. Hazard decreases with elevation, with medium hazard to the few buildings at the landings and low to the farms and villages further inland.

WATER QUALITY: Satisfactory. Meets both water class II and shellfish standards.

BEACH QUALITY: There are no beaches in this segment.

PRESENT SHORE EROSION SITUATION
EROSION RATE: No evidence of erosion was observed along the shores of Segment 13.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There are various bulkheads, built mostly of upright railroad ties, at both Bulls and Steelmans Landings (Photo NH-13-254G to 259G). There were placed primarily to retain artificial fill and have been reasonably effective as erosive forces are not commonly great. Outlying bulkheads at Bulls Landing are in poorer condition (Photo NH-13-254G), but are not critical to the protection of existing buildings. In general the bulkheads are in better repair at Steelmans Landing, and here the boat slip is lined on both sides by bulkheading (Photos NH-13-257G to 259G). In view of lack of erosion and little use, there is no need for action at present.

OTHER SHORE STRUCTURES: One recently enlarged drainage canal crosses the marsh due east of Capeville. No other structures were noted.

POTENTIAL USE ENHANCEMENT: Low. Low-lying fastland subject to storm flooding.

USGS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 17May38 ARP22-23, 25, 56, 57.

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SEGMENT 14, MOCKHORN BAY
SEGMENT DESCRIPTION
MOCKHORN BAY, NORTHAMPTON COUNTY, VIRGINIA

SEGMENT 14 (Maps 12A, 12B, 12C)

EXTENT: 25,000 feet (4.7 mi.), along the marsh-fastland boundary, from the south side of Marion Scott Cove to Brockenberry Creek.

SHORELANDS TYPE

FASTLAND: Low shore, moderately sloping, with a gradient averaging 25 feet per quarter mile. Inland elevations are about 35 feet.

SHORE: Extensive marsh (446 acres), about 2,000 feet wide, indented by a number of "scalops" 2,000 to 3,000 feet wide, almost reaching the fastland border, and occupied by tidal flats; embayed marsh within Oyster Slip and Cobb Mill Creek (10 acres).

NEARSHORE: Mockhorn Bay, a very shallow body of water, occupied mostly by tidal flats, and averaging 1.4 miles wide, lies between the marsh shore and the extensive marshes to the east (Mockhorn Island). Mockhorn Channel, with depths between 8 and 34 feet, passes along the extreme eastern side of Mockhorn Bay.

SHORELANDS USE

FASTLAND: A thin border of unmanaged woodland, 200 to 400 feet wide, lies just inland from the marsh shore along 90% of the shorefront. Behind is agricultural land. The remaining 10% of the shorefront is occupied by open agricultural land reaching the shore (about 6%) and by the village of Oyster (residential and commercial, 2%).

SHORE: Hunting, fishing, and shellfishing are the main uses of the shore area, except in the immediate vicinity of Oyster where there are piers, ramps and slips for both pleasure and commercial fishing craft.

NEARSHORE: The waters in the harbor and in the immediate vicinity of Oyster where there are piers, ramps and slips for both pleasure and commercial fishing craft.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High over the marsh areas due to possible storm surge, but not critical. The hazard is high to medium, critical, in the village of Oyster, depending on elevation and proximity to the water. Elsewhere in the fastland zone, except in the immediate vicinity of the shore, the hazard is low.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: There are no beaches in Segment 14.

PRESENT SHORE EROSION SITUATION

EROSION RATE: No erosion was observed in this segment.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: Outside of the harbor at Oyster no shore protective structures were noted. Within the harbor there are numerous bulkheads installed to retain artificial fill and serve as vertical dock sides.

OTHER SHORE STRUCTURES: At Marion Scott Cove there is a wooden pier and a small marine railway belonging to a private club. Nearby is a dredged canal, probably for the purpose of drainage from a nearby pond and sand pit. At Oyster an earth dike has been built seaward of the village apparently to contain dredged spoil from the channel (Photo NH-14-155).

POTENTIAL USE ENHANCEMENT: Low. As with other segments on this side of the county, the low marsh areas are best left for hunting and fishing.

• The harbor at Oyster provides a haven for local boats as well as for transient yachts. Its position adjacent to the Intracoastal Waterway is advantageous to capturing more boating trade as yachting becomes more and more popular.

MAPS: USGS, 7.5 Min.Ser. (Topo.), TOWSEND and CHERITON Quadrs., 1968.

USGS, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 17May58 AMF82-52, 54, 56. USAP 30Nov59 APS9-95 R-24 2285.

USGS 5Feb67 GS-SWKN-1 1-127, 137.

VIMS 16Dec72 NH-14-155 to 159;

VIMS 20Mar73 NH-14-504 to 513.

Ground - VIMS 16Apr73 NH-14-2610 to 2680.

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SEGMENT 15, RAMSHORN BAY
SEGMENT DESCRIPTION
RAMSHORN BAY, NORTHAMPTON COUNTY, VIRGINIA
SEGMENT 15 (Maps 13A, 13B, 13C)

EXTENT: 27,000 feet (5.1 mi.), along the marsh-fastland boundary, from Brockenberry Creek to Holts Neck opposite Kendall Grove, a mile north of Indiantown Creek.

SHORELANDS TYPE
FASTLAND: Low shore, with a moderate slope from the shoreline, of about 25 feet per quarter mile. The general elevation of the plain is 35 feet.

SHORE: Fringe marsh borders the fastland in the southerly quarter of the segment (10 acres), extensive marsh borders the northerly three-quarters and lies offshore of the southerly part (494 acres), embayed marshes are found in the creeks (53 acres).

SHORELANDS USE
FASTLAND: Plots of unmanaged woodland up to 2,000 feet wide, but generally less than 1,000 feet wide, lie along about 85% of the fastland border, about 10% is agricultural land and 5% is accounted for by creek entrances and their bordering marshes. Agricultural land lies inland.

SHORE: There is some small-scale shellfish industry at Indiantown Creek, shellfishing and hunting are carried on in the marsh.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High over the marsh shore area in the event of storm surge, but noncritical as there are no structures in the zone. Low to the fastland as all buildings are on or above the 10-foot contour.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: There are no sand beaches in Segment 15.

PRESENT SHORE EROSION SITUATION
EROSION RATE: No erosion was observed in this segment.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: None noted.

OTHER SHORE STRUCTURES: The only shoreline structures noted were a pier in considerable disrepair together with a boat ramp, usable only at high water, at the north side of Indiantown Creek, about 1,000 feet in from the bay entrance.

POTENTIAL USE ENHANCEMENT: Low. As with the other segments on the eastern fastland-marsh boundary of Northampton County, development potential at present is low, with the best course of action seeming to be to preserve the marshes as they are for hunting and fishing or as wildlife refuges.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CHERRYTON Quadr., 1968.
C&GS, #563, 1:40,000 scale, CHESAPEAKE BAY, Cape Charles to Wolf Trap, 1971.

PHOTOS: Aerial-USDA 6May38 ANP17-77, 78;
USDA 17May94 AMF22-91, 92.
USAF 30Nov59 AF59-35 K-24 2285, 2286, 2293.
USGS 30Jun67 GS-SWBK-1 1-65;
USGS 5Feb67 GS-SWBK-1 1-136, 137.
VIMS 20Mar73 NH-15-9-14, NH-16-228.
SEGMENT 16, HOLT NECK
SEGMENT DESCRIPTION
HOLT NECK, NORTHAMPTON COUNTY, VIRGINIA

SEGMENT 16 (Maps 14A, 14B, 14C and 15A, 15B, 15C)

EXTENT: 23,000 feet (4.4 mi.), along the marsh-fastland boundary, from one mile north of Indiantown Creek to Mill Creek (south end of Brickhouse Neck).

SHORELANDS TYPE

FASTLAND: Low shore, terraced. The 5-foot contour lies close to the marsh boundary and the fastland slopes very gently upward to the 10-foot contour between one-quarter and one-half mile inland. The slope steepens to about 20 feet in two-tenths of a mile, where it becomes very gentle again and finally the general elevation of the inner fastland is 35 to 40 feet.

SHORE: Extensive marsh (1,107 acres); and embayed marsh (30 acres).

NEARSHORE: Ramshorn Bay, with extensive tidal flats, lies between the narrower marsh section of the segment and the extensive marshes to the east.

SHORELANDS USE

FASTLAND: A band of unmanaged woodland from 1,500 to 3,000 feet wide borders the shore. The land behind is primarily agricultural land.

SHORE: There is hunting on the marshes, and fishing and shellfishing in the creeks. A limited shellfish industry (crabs and oysters) exists at Box Tree Creek and Webbs Island where there are small piers and marginally useful boat ramps.

NEARSHORE: Fishing and shellfishing.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High over the marshes due to the possibility of storm surge; medium to the lower fastland and outliers such as Webbs Island. With a very high flood the conditions could become serious as there are several residences on Webbs Island and a few at Box Tree Creek where elevations are between 5 and 10 feet above MSL and road access in each instance is across low marsh areas. Flood danger is low for the remainder of the fastland.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: There are no beaches in Segment 16.

PRESENT SHORE ENHANCEMENT SITUATION

EROSION RATE: There are no shore erosion problems apparent in the segment.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: None are noted.

OTHER SHORE STRUCTURES: There are both a pier and a ramp at Box Tree Creek (Photo NH-16-160), and 4 piers, a ramp and some bulkheading to retain fill at Webbs Island (Photo NH-16-161). There are also various fences crossing sections of the marsh in the vicinity of Webbs Island.

POTENTIAL USE ENHANCEMENT: Low. Like the other segments in the easterly part of the county, Segment 16 shows little potential for development at present. There is no possibility for developing beaches, the Intracoastal Waterway bypasses the segment several miles to the east and it appears that present use of the marshes for hunting, fishing and shellfishing should be continued.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CHESITON, FRANKTOWN and NASSAWADOX Quadrs., 1968.

C&GS, #1221, 1:80,000 scale, CHINCOTEAGUE INLET to GREAT MACHIPONGO INLET, 1972.

C&GS, #1222, 1:80,000 scale, CHESAPEAKE BAY ENTRANCE, 1972.

PHOTOS: Aerial-USDA 6May38 AP17-77, 98, 100.

USAF 30Nov59 AF59-35 R-24 2222; R-25 2407.

USGS 30Jan67 GS-SWBRK-1 1-03;

USGS 5Feb67 GS-SWBRK-1 1-34, 136.

VIMS 18Dec72 NH-16-160, 161;

VIMS 20Apr73 NH-16-528 to 539, NH-17-539.
SEGMENT 17, MACHIPONGO RIVER
SEGMENT DESCRIPTION
MACHIPONGO RIVER, NORTHAMPTON COUNTY, VIRGINIA
SEGMENT 17 (Maps 15A, 15B, 15C and 16A, 16B, 16C)

EXTENT: 52,800 feet (10 mi.), from Mill Creek to the county limit, a mile north of Willis Wharf on Parting Creek.

SHORELANDS TYPE
FASTLAND: Low shore, about three-quarters of a mile wide from the shore to the 10-foot contour, with several marsh-creek reentrants. Behind is a moderate terrace slope with a gradient of about 20 feet in 1,000 feet (0.2 mi.) rising to an upper plain elevation of 35 to 40 feet. In the northerly 12 miles (Willis Wharf area) the terrace slope comes right to the water's edge at Parting Creek.

SHORE: Extensive marsh with hammock islands over the lower three-quarters (3,524 acres) of the segment; fringe marsh in the Parting Creek area (12 acres); and scattered embayed marsh (95 acres).

NEARSHORE: Hog Island Bay, with extensive tidal flats, lies off the lower third of the segment. The shore of the upper two-thirds is bounded by Machipongo River and Parting Creek. Channel widths average 800 feet; depths range between 6 and 66 feet. Parting Creek, above Willis Wharf, is shallow and averages 1,700 feet wide.

SHORELANDS USE
FASTLAND: About 50% is agricultural down to or very close to the shore; 40% is unmanaged, wooded (patchy) and 10% is commercial-residential (Willis Wharf mainly, and Red Bank).

SHORE: The marshes are used for hunting waterfowl; there is fishing and shellfishing (oysters and crabs) in the marsh channels. At Red Bank there are a boat ramp and several small private wharves. At Willis Wharf there are a couple of fairly substantial commercial piers in the central area of the town's waterfront and numerous smaller private wharves, some in poor repair, either side of town. There is a boat-launching ramp at the south side of town.

NEARSHORE: There is shellfishing on the tidal flats and fishing in the channels. The Intracoastal Waterway crosses part of the area, and the river and creek channels provide transit for boats to and from Red Bank and Willis Wharf.

OWNERSHIP: Private.

ZONING: Agricultural.

FLOOD HAZARD: High over the marsh areas due to possibility of storm surges; medium to the higher ground on the marsh islands and the waterfront areas in the towns. During flood times conditions might become serious for those occasional residents of the marsh islands who are dependent on road communication across low marsh areas. Low in the upper fastland areas.

WATER QUALITY: Satisfactory. Meets both water class II B and shellfish standards.

BEACH QUALITY: There are no sand beaches in Segment 17.

PRESENT SHORE EROSION SITUATION
EROSION RATE: No particular erosion was noted in the segment, although it appears that occasionally (probably during times of high runoff) areas along the concave banks of Parting Creek below Willis Wharf and of Machipongo River may undergo some temporary erosion.

ENDERMINDED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: On Parting Creek, southeast of Willis Wharf, there is a length of some 200 feet of wooden bulkhead which appears effective in protecting the bank there during high run-off times. There is concrete rubble riprap both at the head of the channel at Red Bank and at the edge of the creek at the southwest side of Willis Wharf. Their effectiveness is apparently satisfactory.

OTHER SHORE STRUCTURES: In addition to riprap and piers at Willis Wharf and Red Bank, there is some bulkheading to retain artificial fill. Much of this in Willis Wharf is in poor repair. There are boat-launching ramps at both towns. At Willis Wharf the dredge spoils area has been diked off southeast of town.

One pier was noted near the mouth of Red Bank Creek on Bowling Point. There is extensive trash dumping on the marsh at the head of one of the branches of Mill Creek at the south end of the segment (Rte. 621).

POTENTIAL USE ENHANCEMENT: Moderate. There is a modest shellfish industry at Willis Wharf and a few boats also operate from Red Bank. From the marketing point of view, this area has the advantage of being situated very near both a major north-south highway (Rte. 13) and a railroad.

Lack of beaches inhibits long stop-over tourism, but as Willis Wharf is near the main highway possibly an overnight tourist industry could be built around the scenic interest of the waterfront area.

The marshes should be left as they are for hunting, nature study, shellfishing and fishing.

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

USAF 30Nov59 AF59-55 R-25 2408.
USAF 9Dec59 AF59-55 R-50 3005.
USGS 5Feb67 SW-1 1-112, 133, 148, 150.
VIMS 18Dec72 NH-17-162.
VIMS 20Mar73 NH-17-539 to 564.

102
SEGMENT 18, OCCOHANNOCK CREEK
SEGMENT DESCRIPTION
OCCOHANNOCK CREEK,
NORTHAMPTON AND ACCOMACK COUNTIES, VIRGINIA
SEGMENT 18 (Maps 10A, 10B, 10C)
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, lower half; moderately low shore, upper half of the creek, with 25-foot bluffs rising from the marsh edge. SHORE: Fringe marsh (45 acres), embayed marsh at the heads of the creek branches (106 acres). CREEK: Submerged meander valley, few tributaries, mostly near the inlet. The bottom is principally muddy.

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

OWNERSHIP: Private.
ZONING: Agricultural.

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

WATER QUALITY: Satisfactory in 1973, meets both water class II B and shellfish standards; previously the upper creek had been unsatisfactory and closed to the taking of shellfish for direct sale.

PRESENT SHORE EROSION SITUATION
EROSION RATE: Very little erosion in the creek. There was some 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.

ENDANGERED STRUCTURES: None.
SHORE PROTECTIVE STRUCTURES: None.
Suggested Action: None at present.

OTHER SHORE STRUCTURES: There are approximately 20 wharves on the creek, and 2 boat ramps.

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 crooked, but with proper attention to the aids to navigation, the approaches to Occohannock Creek are easily navigable.
INLET: The north spit at the entrance to the creek has grown southward and inward considerably in 30 years (cf. Photos USDA AN021-1 1938 and USGS-SWBK-1 1-5 1967), but the channel appears to have remained in about the same position during that time.
CREEK: The channel is marked by day beacons for about half the length of the creek (3 mi.), to the vicinity of Davis Wharf and Morley 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 at Rue Wharf (Rte. 178), at least 3 feet and generally 4 feet of water can be expected along the center of the creek.

POTENTIAL USE ENHANCEMENT: Occohannock Creek offers the first really good shelter for small craft north of the Cape Charles Harbor and Kings Creek vicinity, 20 miles to the south. While care should be exercised 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 on Tawes Creek, Johnson Cove, Gosnold Wharf area or Scarborough Gut, to mention just those nearest the inlet. As with the other creeks in the region, the bluffs overlooking the creek offer desirable sites for residences, either permanent or seasonal, and Occohannock Creek is particularly attractive since it offers extensive boating possibilities as well.

MAPS: USGS, 7.5 Min.Ser. (Topo.), JAMESTOWN and EDMORE Quadr., 1943 and 1968.
4.3 Segment and Subsegment Maps
2A thru 16C
MAP 2C
FISHERMANS ISLAND - LOWER KIPTOPEKE
SHORELINE EROSION SITUATION AND FASTLAND OWNERSHIP; USE
Segments 0, 1A, 1B, 12

OWNERSHIP:
Private
Federal

USE:
Agricultural = A
Government = G
Preserved = PR
Recreational = RC
Unmanaged = U
Unmanaged, Wooded = W

EROSION:
Severe, noncritical
Moderate noncritical
Accretion

0 1000 2000 3000 4000 5000 FEET
MAP 3A
UPPER KIPTOPEKE
TOPOGRAPHY AND CULTURE
Segments IC, ID, IE, IF, IG, IH
/ = SUBSEGMENT BOUNDARY
MAP 3B 1E
UPPER KIPTOPEKE
SHORELANDS TYPES
Segments IC, ID, IE, IF, IG, IH

FASTLANDS
Low Shore
Mod. Low Shore with Bluff
Mod. High Shore with Bluff
Dune

SHORE
Beach
Fringe Marsh
Embayed Marsh

NEARSHORE
Narrow
Intermediate
MAP 5A
SAVAGE NECK – CHERRYSTONE INLET
TOPOGRAPHY AND CULTURE
Segments 4A, 4B, 4C, 4D, II
= Subsegment Boundary
= Segment Boundary

0 1000 2000 3000 4000 5000 6000 7000 FEET

N
MAP 5B
SAVAGE NECK - CHERRYSTONE INLET
SHORELANDS TYPES
Segments 4A, 4B, 4C, 4D, 11

FASTLANDS
Low Shore
Low Shore with Bluff
Dune

NEARSHORE
Beach
Marsh: Fringe
Embayed
Intermediate
Wide

SHORE

0 1000 2000 3000 4000 5000 6000 7000 FEET

N

4C

4B

4A

CHERRYSTONE

INLET

EXREVILLE

Cem. of S."Taggart"
MAP 5C
SAVAGE NECK - CHERYSTONE INLET
SHORELINE EROSION SITUATION
AND
FASTLAND OWNERSHIP, USE
Segments 4A, 4B, 4C, 4D, 11

OWNERSHIP
1 = Private

EROSION
Severe:
Critical
Non-critical

USE
A = Agricultural
RC = Recreational
RS = Residential
U = Unmanaged, unwooded
W = Unmanaged, wooded

N
0 1000 2000 3000 4000 5000 FEET
MAP 6A
THE GULF - MATTAWOMAN CREEK
TOPOGRAPHY AND CULTURE
Segments 5, 6, 7 (Partial)

=SEGMENT BOUNDARY
MAP 6B
THE GULF - MATTAWOMAN CREEK
SHORELANDS TYPES
Segments 5, 6, 7 (Partial)

FASTLAND
Low Shore
Low Shore with Bluff

SHORE
Beach
Fringe Marsh
Embayed Marsh

NEAR SHORE
Wide
MAP 7B
CHURCH NECK - HUNGARS CREEK
SHORELANDS TYPES
Segments 7, 8A, 8B, 8C, 8D, 8E

FASTLANDS
Low Shore
Low Shore with Bluff

SHORE
Beach
Fringe Marsh
Embayed Marsh

NEARSHORE
Intermediate
Wide
MAP 7C
CHURCH NECK - HUNGARS CREEK
SHORELINE EROSION SITUATION
AND FASTLAND OWNERSHIP, USE
Segments 7, 8A, 8B, 8C, 8D, 8E

OWNERSHIP
Private

USE
Agricultural
Unmanaged

EROSION
Accretion
Moderate non-critical
Severe non-critical
MAP 8C
NASSAWADOX CREEK
SHORELINE EROSION SITUATION AND
FASTLAND OWNERSHIP; USE
Segment 9

OWNERSHIP
Private

USE
Agricultural
Residential

EROSION
Moderate
Non-critical
Slight or no change = absence of symbol alongshore
MAGOTHY BAY
SHORELINE EROSION SITUATION
AND
FASTLAND OWNERSHIP; USE
Segments 12, 13

OWNERSHIP
Private
Federal

USE
Agricultural
Government

EROSION
Slight or No Change
MAP 12C

MOCKHORN BAY

SHORELINE EROSION SITUATION
AND
FASTLAND OWNERSHIP; USE
Segment 14

OWNERSHIP
Private

USE
Agricultural
Unmanaged, wooded

EROSION
Slight or No Change
MAP 13C
RAMSHORN BAY
SHORELINE EROSION SITUATION
AND
FASTLAND OWNERSHIP; USE
Segment 15

OWNERSHIP
Private

USE
Agricultural
Unmanaged,
wooded

EROSION
Slight or No Change
MAP 14B
WEBBS ISLAND
SHORELANDS TYPES
Segment 16

FASTLAND
Low Shore

SHORE
Embayed Marsh
Extensive Marsh

NEAR SHORE
Wide
MAP 15 B
BRICK HOUSE NECK
SHORELANDS TYPES
Segments 16, 17

FASTLAND
Low Shore

SHORE
Embayed Marsh
Extensive Marsh

NEAR SHORE
Wide
MAP 16B
MACHIPONGO RIVER
SHORELANDS TYPES
Segment 17

FASTLAND
Low Shore

SHORE
Fringe Marsh
Embayed Marsh
Extensive Marsh

NEAR SHORE
Wide
MAP 16 C

MACHIPONGO RIVER

SHORELINE EROSION SITUATION
AND
FASTLAND OWNERSHIP; USE
Segment 17

OWNERSHIP
Private

USE
Agricultural
Commercial
Residential
Unmanaged wooded

EROSION
Slight or No Change

0 1000 2000 3000 4000 5000 6000 7000 FEET