Coastal Zone
Information
Center

COASTAL ZONE
INFORMATION CENTER

Sea Grant
Coastal Resources Center
University of

Rhode Island's Barrier Beaches: Volume II

Reports and Recommendations at the Community Level

The Coastal Resources Center

A Coastal Management Publication
University of Rhode Island
Marine Technical Report No. 4

GB
459.4
.044
1973
v.2

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

C.200433 C 2?

Property of CSC Library

RHODE ISLAND's BARRIER BEACHES: VOLUME II

Reports and Recommendations
at the Community Level

by
Stephen B. Olsen and Malcolm J. Grant

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

Published by THE COASTAL RESOURCES CENTER
University of Rhode Island
Kingston, Rhode Island

GB 459.4.044 1973 v.2
3275852
JUL 30 1997

The report which follows is designed to supplement Rhode Island's Barrier Beaches: Volume I - A Report on a Management Problem and an Evaluation of Options. Both documents are elements in a study prepared for the State Coastal Resources Management Council by the University of Rhode Island's Coastal Resources Center.

In Volume I the natural features of barrier beaches, their importance in ecological terms and techniques for management are discussed, together with recommendations for development of a statewide management plan. In this volume individual beaches are examined on a community-by-community basis. A consolidated Table of Contents for Volumes I and II is included. This study was supported in part by funds from the University of Rhode Island's Institutional grant from the Office of Sea Grant Programs, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

TABLE OF CONTENTS

		Page
VOLUME I:	A Report on a Management Problem and an Evaluation of Options	
	Chapter I - Introduction	1
	Chapter II - Geological Processes	5
	Chapter III - Ecological Processes	14
	Chapter IV - Development Consequences and Management Policies	25
	Chapter V - Tools at Hand: Controlling Use of the Land Resource	45
	Chapter VI - Conclusions and Recommendations	92
	Appendices:	
	1. Report of Citizens Committee on Barrier Beaches	
	2. Glossary of Terms	
	3. Acknowledgments	
VOLUME II:	Reports and Recommendations at the Community Level	
	Methods and General Findings	1 - 8
	Town of Westerly	9
	Town of Charlestown	25
	Town of South Kingstown	41
	Town of Narragansett	54
	Town of Jamestown	68

	Page
City of Newport	72
Town of Middletown	82
Town of Little Compton	89
Town of New Shoreham	103

A location map identifying the barrier beach areas which were studied follows the Table of Contents. Land use and natural feature maps were completed for all barrier beaches and a number of these appear in this volume at the ends of some of the individual reports.

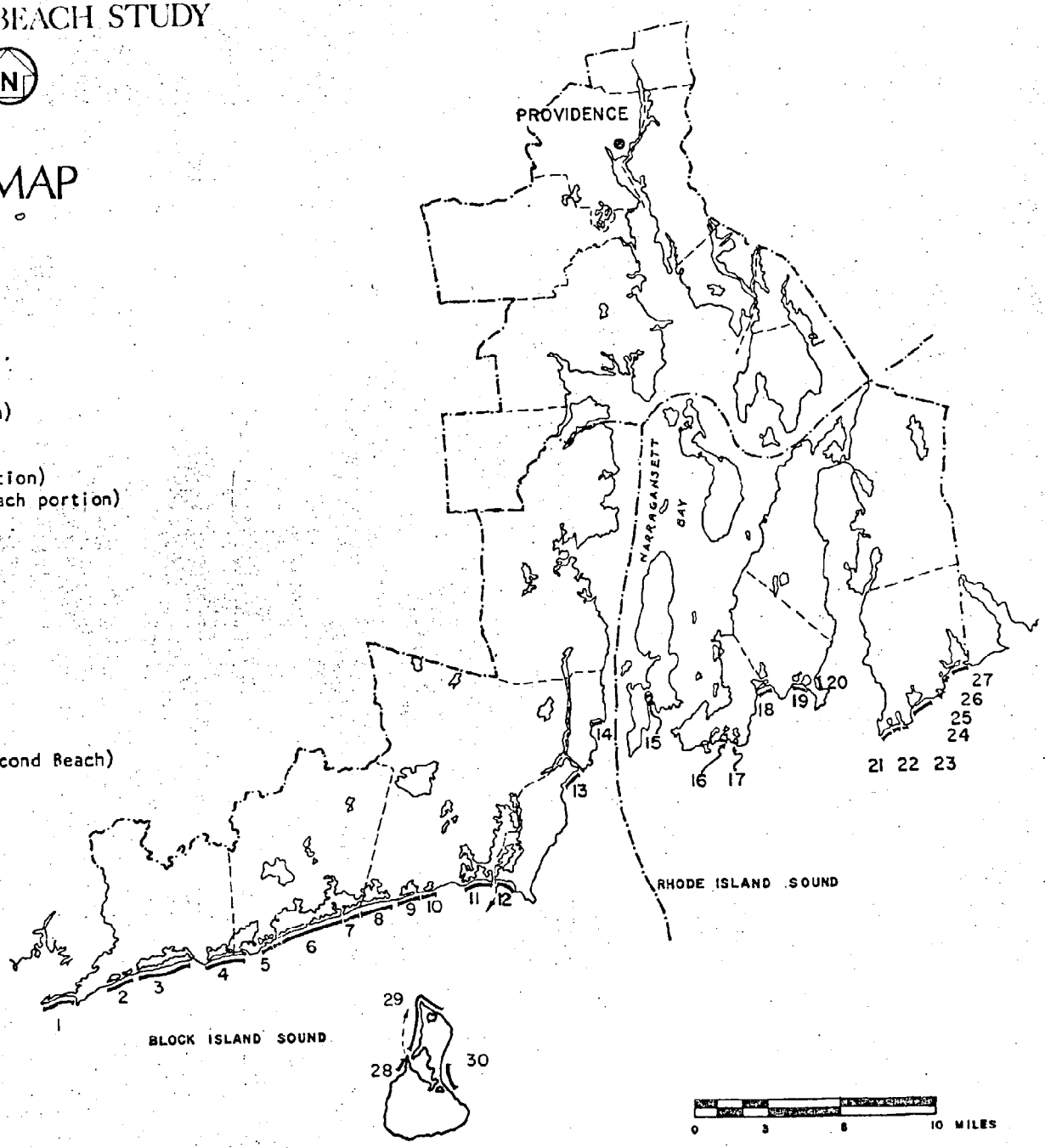
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

LOCATION MAP

Key:

1. Napatree Point Barrier
2. Mashaug Ponds Barrier
3. Winnapaug Pond Barrier (Atlantic Beach)
4. Quonochontaug Pond Barrier
5. Michel, Garden and East Ponds Barrier
6. Ninigret Pond Barrier (East Beach portion)
7. Ninigret Pond Barrier (Charlestown Beach portion)
8. Green Hill Pond Barrier
9. Trustom Pond Barrier
10. Card Ponds Barrier
11. East Matunuck and Jerusalem Barrier
12. Point Judith Pond Barrier
13. Narragansett Beach Barrier
14. Bonnet Shores Barrier
15. Mackerel Cove Barrier
16. Lily Pond Barrier (Hazard's Beach)
17. Almy Pond Barrier (Bailey's Beach)
18. Easton Pond Barrier (First Beach)
19. Nelson and Gardiner Ponds Barrier (Second Beach)
20. Third Beach Barrier
21. Watch House Pond Barrier
22. Round Pond Barrier
23. Long Pond Barrier (Tappen's Beach)
24. Briggs Marsh Barrier
25. Ship Pond Barrier
26. Round Meadow Pond Barrier
27. Tunipus and Quicksand Ponds Barrier
28. Coast Guard Beach Barrier
29. Sandy Point and West Beach Barrier
30. Crescent Beach Barrier



VOLUME II

ERRATA

Location Map: *Mashaug Ponds* should read *Maschaug Ponds*.

Page 3, line 2: delete period between *barriers* and *it*. Read as single sentence.

Page 41, Title: *South Kingston* should read *South Kingstown*.

Page 60, line 16: *Naural* should read *Natural*.

Page 62, line 16: *LEESEES* should read *LESSEES*.

Maps following page 88: *SACHUET* should read *SACHUEST*.

Page 108, lines 16, 17: *Sachem Pond Barrier (Sandy Point, West and Coast Guard Beach)* should read *Sandy Point, West and Coast Guard Beach Barriers*. Reference to Sachem Pond should be dropped.

Maps following page 112. The southern most barrier beach indicated on the maps (lower right hand corner) is not labeled. It should read *COAST GUARD BEACH*.

Map following page 52. Industrial and Governmental area around Card Pond should appear as *Light Residential*.

INTRODUCTION

METHODS

In this study all narrow strips of land composed principally of sediments ranging in size from sand to cobble and separated from the mainland by a coastal pond or wetland were considered barrier beaches. Napatree Point, which is a barrier spit (technically a tombolo) also was included. The lateral boundaries of the study areas were defined by lines drawn perpendicular to the general coastal trend from the ocean side of the barrier to the furthest lateral extension of pond or wetland. Headlands, as identified by higher elevations and changes in geology, were not included. Generally, the study areas included all pondside wetland joined to the barrier. Thirty barrier beaches were identified (see Location Map) with a total area of 2,287 acres and 27.4 miles of ocean shoreline. In some cases areas have been included that may not come under the jurisdiction of the Coastal Resources Management Council. The findings of this study, however, will be of great assistance when, for the purposes of management, a legal definition of barrier beaches is developed.

The Coastal Resources Center was given approximately six months to complete the study and propose recommendations for the future management and use of Rhode Island barrier beaches to the Coastal Council. The Center, with a small permanent staff, was hard pressed to meet the deadline. Additional part time staff was recruited and the form and content of the report was shaped by what we felt could be done with the time and resources available. The results of an extensive literature study are

presented in Volume I. This volume presents the findings of a field survey, interviews with town officials, a study of natural features made from aerial photographs and a study of ownership and land use made from the records of town assessors.

The field survey was completed in early October of 1972. First the barrier beaches were photographed from the air, then they were all walked or driven over from end to end. Notes were taken on the condition of the dunes and the vegetation. Transit readings were made to get representative figures for the heights of dune crests above sea level. When the dune crest was fairly even only one or two readings were made; when it was uneven additional readings were taken to cover the range of heights.

Before the barrier beach study was planned, the Center had arranged for Environmental Associates of North Kingstown, Inc. to map the principal natural and man-made features in a mile wide strip around the state's coastline. The features are identified on aerial photographs taken in April of 1972. When it became necessary to prepare a study of the barrier beaches it was decided to map them first. Some of the results of this work are included under the heading of "Principal Vegetation Types" in the data tabulations on each barrier. The maps in this volume of the principal natural and man-made features on the barriers were drawn from more detailed maps produced by this study. It must be noted that the areas identified as marsh on the maps only include true salt and freshwater marsh. Other freshwater wetlands, including stands of the reed Phragmities communis (a hydrophytic grass) which is common along the pond side of barrier beaches but is not strictly speaking a marsh species, are included with secondary growth. However, since Phragmities, is

protected by the Rhode Island Freshwater Wetlands Law and will be used in defining the lateral boundaries of the barriers. It is included under the "wetland" heading in the area tabulations in the text.

The results of the ownership and land use study are presented in summary form in the maps and tables in the chapters that follow. The data were gathered from tax assessors records at town halls. Plat maps of the barriers were traced and the plat numbers recorded. The area, assessed value, and use of the properties and the place of residence of owners were then tabulated. It is important to recognize that the accuracy of tax records is variable. In some cases property recorded at the town halls has been eroded or inaccurately surveyed. Since Little Compton has no plat maps all figures for the town had to be estimated. It also should be made clear that the market value of the property is substantially greater than its assessed value. The values given in the data tabulations for each barrier, therefore, must be used with great caution. They do, however, tell us the value of barrier property to the town through the taxes they produce. The categories used in the ownership and land use study are defined as follows:

Private Undeveloped (PU): privately owned land which is without structures and is not being used for a taxable activity.

Private Conservation (PC): privately owned land which is classified in the tax assessor's records as a Conservation Area and is tax exempt.

Private Beach (PB): a privately owned bathing beach administered as a commercial enterprise or a club.

Private Limited Development (PLD): privately owned unsubdivided property with an average of not more than one residence every

two acres.

Private Urban Development (PUD): privately owned subdivided lots averaging more than one residence every two acres.

Town Conservation (TC): land owned by a town and classified as a Conservation Area.

Town Beach (TB): land owned by a town and administered as a public bathing beach.

Special District Conservation (DC): land owned by a fire district or utility such as a water company and classified as a Conservation Area.

Special District Beach (DB): land owned by a fire district and administered as a bathing beach.

State Conservation (SC): state land classified as a Conservation Area.

State Urban Development (SUB): state land leased to private parties for residential and commercial development (for example, Galilee)

Federal (US): land owned by the federal government.

FINDINGS

Forty-nine percent (13.1 miles) of Rhode Island's barrier beach ocean shoreline is presently undeveloped. As the state's shoreline becomes more crowded and developed the pressures on the undeveloped barrier beaches increases. In Charlestown and South Kingstown houses are again being built on barriers that had every structure swept off them during both major hurricanes of the past 40 years. The barriers that have been developed as residential areas and public bathing beaches

are fragile and vulnerable to storm damage, but their use is well established and is unlikely to change, at least until the next major hurricane. The undeveloped barriers, however, are a unique natural resource which is being badly misused. Rhode Island has no law protecting the dunes and most people are unaware of their value. Only in the Napatree Point Conservation Area have concerted efforts been made to inform the public of their importance. The majority of Rhode Island's barrier dunes are crisscrossed with footpaths and vehicle tracks, and natural redevelopment after their erosion by the 1938 and 1954 hurricanes has been checked. Lines of well developed barrier dunes would provide the barrier ponds and mainland with a buffer against hurricanes and they would add to the beauty of the state's shoreline. A comparison of aerial photographs taken in 1962 and 1972 makes the misuse of the barriers fully evident. The 1962 photographs of the Ninigret Pond barrier, for example, show that the band of vegetation was narrow but that the barrier was recovering from the destruction of the 1954 hurricane. There was only one vehicle route up the middle of the barrier and a few footpaths across the dunes. Photographs taken 10 years later show that the width of the vegetated strip has almost doubled but that vegetated areas have been cut up by a maze of paths and vehicle tracks. Large areas are completely unvegetated and the erosion of the dune by wind and waves is evident along the length of the barrier. Such erosion could be checked if the dunes were protected from human use and current dune stabilization programs were continued.

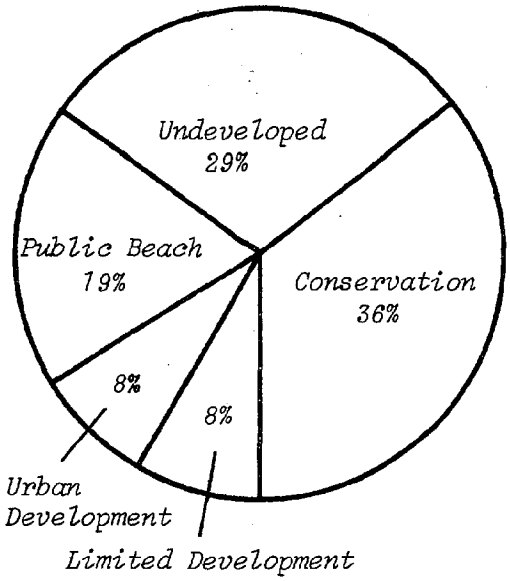
Only the towns of Westerly and New Shoreham have ordinances protecting the dunes. The dunes along Westerly's heavily developed Winnapaug Pond barrier have been preserved by forbidding any construction that

would weaken the dunes and by requiring that all houses built behind dunes must have boardwalks across the dunes to the beach. On other barriers several projects were undertaken to rebuild and revegetate dunes destroyed by the 1954 hurricane. These projects were successful and along Second Beach in Middletown, for example, a line of substantial dunes was developed. Since then, however, these dunes have been unprotected from human misuse and erosion has been allowed to go unchecked. As a result these dunes are in places lower today than they were 10 years ago.

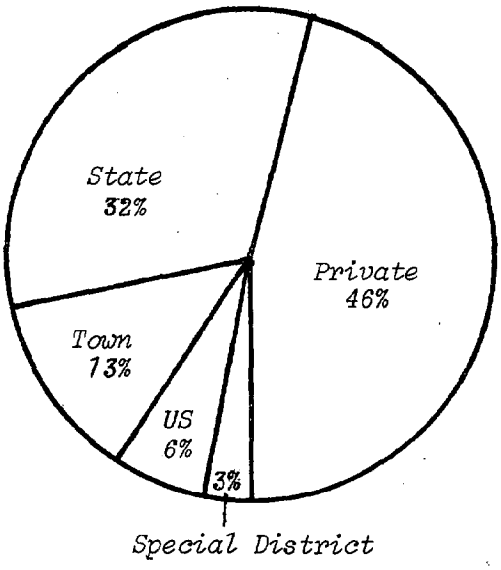
Interviews with town officials made it clear that the towns would welcome suggestions and assistance to help them better manage their barrier beaches. It was also clear, however, that relations between the towns and state authorities are poor. Along the coast west of Narragansett Bay the towns are displeased with the management of the state beaches. Town officials feel that the towns should be given a share of the revenues they produce. There is little or no cooperation or even communication between town and state officials on the management of state owned beaches and conservation areas and any suggestion of more state control and ownership of barrier beaches is not welcomed. There will always be struggles for authority between local and state governments but the present atmosphere of distrust does not augur well for the cooperation that will be needed if the barrier beaches are to be properly managed in the future.

The findings of the land use and ownership study are summarized below:

LAND USE



OWNERSHIP



Of the 2,287 acres of barrier beach in Rhode Island, 65% are undeveloped and 35% are developed.

Of the total, 8% is classified as "private urban development" (more than one house per two acres), 5% is "private limited development" (one house or less per two acres), 19% is in public bathing beaches with or without permanent structures, and 3% is federal property in the "limited development" category.

Private owners control undeveloped barrier beach available for exploitation amounting to 26% of the total. The state and ocean communities own undeveloped barriers established as conservation areas amounting to 32% of the total acreage. Of the remaining undeveloped barrier beaches, 2% are in tax exempt private conservation areas, 2% are in fire district or public utility conservation areas and 3% are in

undeveloped federal land.

There are at present no state or local ordinances that expressly prohibit the development of privately owned land. Several towns, however, are in the National Flood Insurance Program and, therefore, impose special building standards on structures on barrier beaches. In the case of Charlestown and Green Hill Beach in South Kingstown these constraints have not discouraged people from building.

All of the "private urban development" category is in Washington County and such development is presently increasing.

All of the state beaches on the ocean barriers are in Washington County while by far the largest amount of municipally owned barrier bathing beaches is in Newport County.

Out-of-state residents own 41% of all developed and undeveloped barrier beach acreage in the private sector.

TOWN OF WESTERLY

BARRIER BEACHES:

1. Napatree Point Barrier
2. Maschaug Ponds Barrier
3. Winnapaug Pond Barrier (Atlantic Beach)
4. Quonochontaug Pond Barrier

Total Length: 5.6 miles

LAND USE:

	Acreage	*Ocean Shoreline*	*Assessment*
1. Private Undeveloped	183	6,200 ft.	$ 167,000
2. Private Conservation	16	---	5,000
3. Private Beach	22	3,300 "	104,000
4. Private Light Development	3	400 "	35,000
5. Private Urban Development	62	6,000 "	1,066,000
6. Town Conservation	2	---	---
7. Town Beach	3	600 "	---
8. Special District Conservation	37	4,800 "	---
9. Special District Beach	18	2,100 "	49,000
10. State Conservation	9	500 "	---
11. State Beach	62	3,200	---

	Acreage	Ocean Shoreline	Assessment
12. State Urban Development	---	---	$ ---
13. Federal	---	---	---
TOTALS	417	27,000 ft.	$1,426,000

*NOTE: This is approximately 2.3% of the assessed value of all property taxed by the town. It produces $80,000 in annual tax revenue.

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	88
2. Other, Rhode Island	14
3. Out-of-state	115
TOTAL	217

Municipal Controls: Westerly is in the permanent program of the National Flood Insurance Program. Its zoning ordinances and building code have been amended to include special restrictions on new construction in flood prone shore areas including the barrier beaches. With the exception of Atlantic Beach, the barrier beaches are zoned as flood prone residential areas where development is stringently controlled. Atlantic Beach is zoned for residential and commercial development.

Westerly has effective ordinances protecting its barrier beaches and dunes. No building is permitted on dunes and the owners of homes built behind dunes are required to protect them by building boardwalks to the beach and erecting snow fences. This ordinance has preserved the

dunes in a heavily developed strip along Atlantic Beach. Vehicular use of the beach is prohibited from mid June to mid September.

Comprehensive Community Plan: Westerly's community plan does not propose any major changes for the town's ocean shoreline and the existing patterns of barrier development are maintained. Only Atlantic Beach is open to commercial development. The plan proposes that remaining marsh areas be preserved as open space.

General Problems: The management of Westerly's barrier beaches is complicated by the town's proximity to Connecticut and by the state beach at Misquamicut (Atlantic Beach). Out-of-state recreators crowd Westerly's beaches and create a number of problems for residents. The great numbers of people that visit the private conservation areas at Napatree and Quonochontaug make their maintenance a complex and often expensive problem. The Misquamicut State Beach places a heavy burden on town police and traffic control services for which the town receives no compensation. Local officials are united in their belief that compensation should be provided by the state and Westerly legislators have this year again introduced legislation in the General Assembly requiring that State Beach revenues be shared with the town.

Napatree Point Barrier
Length: 1.2 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Private Undeveloped	39.0	1,220 ft.	17	$ 9,400

	Acreage	Ocean Shoreline	No. of Lots	Assessment
2. Private Urban Development	1.0	---	1	$ 51,150
3. Special District Conservation	37.0	4,760 ft.	12	unavailable
4. Special District Beach	18.0	2,130 "	5	48,500
TOTALS	95	8,110 ft.	35	$ 109,050

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	10
2. Other, Rhode Island	2
3. Out-of-state	7
TOTAL	19

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	19.6 acres
2. Secondary Growth	10.6 acres
3. Wetland	0.9 acres

HURRICANE DAMAGE:

1. 1938	39 homes destroyed, 15 deaths
2. 1954	$180,000 damage

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938	10.5 ft. above mean sea level
2. 1954	9.5 ft. above mean sea level

3. Standard Project 16.0 ft. above mean sea level

DUNE CREST ELEVATION:

1. West end (near Point) 7.5 ft. above mean sea level
2. Middle 7.5 ft. above mean sea level
3. East end (near entrance) 10 ft. above mean sea level

Natural Features: Napatree Beach is a tombolo, a sand spit formed by longshore currents and wave action. It connects Napatree Point to the Watch Hill headland. The barrier is narrow (200 yards maximum) and low in profile. The ocean and bay side beaches are separated by a vegetated dune varying in height from eight feet above mean sea level at the western end to ten feet at the eastern end. Vegetation on the barrier is a vigorous growth of beachgrass. The dune is cut by numerous washovers (33 are visible on 1972 aerial photographs) and footpaths. At the eastern end of the barrier the seaward base of the dune has been eroded by wave action. Napatree Point is formed of glacial deposits and rises substantially higher than the barrier beach. It is densely covered in shrubs and small trees and supports the ruins of old coast artillary batteries.

Development: At the extreme eastern end of the barrier beach is a private beach club which leases its land from the Watch Hill Fire District. The clubhouse is built on the dune and a large parking lot extends across the width of the barrier. The remainder of the barrier is administered as a Conservation Area by the Watch Hill Fire District. The Napatree Point Conservation Committee, a private group of Watch

Hill residents, has been active in trying to protect the area and educate the public to its proper use. Snow fences have been erected across the washovers, a number of ecological studies initiated and in 1970 vehicles were banned. The results of this work are encouraging. Napatree, at least in the fall and winter, is an oasis of calm and natural beauty in an otherwise crowded and heavily developed region. The survival of Napatree as a natural area of great beauty is, however, by no means assured. The average number of visitors on summer weekends is some 500 people and close to 200 boats. A number of houseboats anchor for the summer in the lee of the barrier. Studies made during the summer of 1972 relate the refuse from boats to the decreasing numbers of clams, crabs, scallops and lobsters in the area. The Department of Health has prohibited the harvesting of shellfish along the northern side of the Point. It has proved difficult to restrict people to the beach and designated paths and the protection of beachgrass has been a major problem.

Storm History: Napatree Beach was heavily developed by the turn of the century. The 1938 hurricane destroyed all structures that had been built on the barrier and fifteen lives were lost. The dune was washed into Little Narragansett Bay. The barrier was again extensively damaged in 1954 and since then has remained undeveloped. Its present elevation remains well below potential hurricane flood levels. Although low and narrow, the barrier provides limited hurricane protection to the towns of Westerly and Pawcatuck (Connecticut).

RECOMMENDATIONS:

1. The continued management of Napatree as a private Conservation

Area open to the public is desirable.

2. Should the Watch Hill Fire District wish to assure Napatree Point's future as a Conservation Area it can negotiate a conservation easement with the town or state. The time period covered by such an easement could be flexible and the town would be authorized to lower the area's tax assessment under Chapter 44-27, General Laws of 1968. A negotiated easement need not involve modification of existing use restrictions and might provide for state or municipal assistance in management and policing (see Vol. I, pp. 77-83 for additional information on easements).
3. The town could insure the future of Napatree Point as a Conservation Area by rezoning it for conservation and thereby closing it to development.
4. A stabilized walkway from the Conservation Area's main access point across the dune to the beach should be provided. Additional efforts should be made to keep people off beachgrass.
5. The existing use of the developed eastern end of Napatree is acceptable.

Maschaug Ponds Barriers
Length: 0.8 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	6.2	1,185 ft.	13	$ 16,260
2.	Private Beach	17.2	2,880 "	13	49,920

	Acreage	Ocean Shoreline	No. of Lots	Assessment
3. Private Urban Development	0.9	250 ft.	5	$ 17,350
TOTALS	24.3	4,315 ft.	31	$ 83,530

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	4
2. Other, Rhode Island	0
3. Out-of-state	9
TOTAL	13

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	6.6 acres
2. Secondary Growth	0.6 acres
3. Wetland	None

HURRICANE DAMAGE:

1. 1938	Unavailable
2. 1954	Unavailable

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938	11 ft. above mean sea level
2. 1954	10 ft. above mean sea level
3. Standard Project	16 ft. above mean sea level

DUNE CREST ELEVATION:

1. West end of Little Maschaug Pond — 8 ft. above mean sea level

Natural Features and Development: This barrier is less than a mile to the west of Winnapaug Pond. The beach and dune are composed of a mixture of sand and pebbles. The dune is poorly vegetated and severely eroded at the eastern end but its condition improves to the west. The ponds behind the barrier have no permanent breachways and are fringed by freshwater marsh.

The eastern end of the beach is littered with the remains of foundations of homes destroyed by past hurricanes. There is presently no construction on or immediately adjacent to the barrier. The land behind the pond is developed as a private golf course.

Storm History: The maximum elevation (eight feet above MSL) of this barrier is well below projected hurricane flood levels. No hurricane damage figures are available, but the remains of former residences indicate the beach's vulnerability to storms.

RECOMMENDATIONS:

1. Flood hazard zoning should be applied to this barrier. It should be closed to any development.
2. Conservation easements should be negotiated by the town or the state with the owners to insure its preservation as open space.

Winnapaug Pond Barrier
(Atlantic Beach)
Length: 2.5 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	118.7	2,200 ft.	105	$ 128,590
2.	Private Beach	4.4	400 "	8	54,200
3.	Private Light Development	2.5	350 "	1	34,700
4.	Private Urban Development	59.7	5,800 "	180	994,120
5.	Town Conservation	2.2	---	1	---
6.	Town Beach	3.1	580 "	7	---
7.	State Beach	62.3	3,200 "	2	---
	TOTALS	252.9	12,530 ft.	304	$1,211,610

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	67
2.	Other, Rhode Island	12
3.	Out-of-state	99
	TOTAL	178

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	45.4 acres
2.	Secondary growth	34.5 acres
3.	Wetland	132.5 acres

HURRICANE DAMAGE:

1.	1938	All houses destroyed
2.	1954	$2.946 million

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	11.8 ft. above mean sea level
2.	1954	11.5 ft. above mean sea level
3.	Standard Project	16.5 ft. above mean sea level

DUNE CREST ELEVATION:

1.	State beach (artificial dune)	10.5 ft. above mean sea level
2.	Atlantic Ave. residential development (by public right-of-way)	13 ft. above mean sea level
3.	High dune at eastern end	30 ft. above mean sea level

Natural Features and Development: This is one of the most heavily developed barriers in the state. Misquamicut State Beach is located at its western end and is surrounded by a heavy concentration of concession stands and recreationally oriented businesses. The dune in this area has been replaced by an artificial dike made of gravel fill. Much of the barrier behind this dike has been paved to provide parking for the state beach. A long stretch of Atlantic Avenue east of the state beach is flanked by summer homes. The houses on the ocean side are built behind a well developed dune which is in remarkably good condition and maintains a relatively constant elevation of approximately 14 feet above MSL. There are few blowouts and no washovers. The good condition of the dune can be attributed to the restriction of foot

traffic over the dune to boardwalks. There is, however, only one public right-of-way to the beach along this stretch of the barrier. Development is less dense on the pond side of the avenue. There has been some filling of the extensive salt marshes which stretch far out into Winnapaug Pond. Filling is most common at the western end of the barrier.

Remnants of the high dunes which once ran the length of the beach can be seen at the eastern end of the barrier. Several homes built before 1938 are located on the pond side slope and near the crest of these dunes whose crest heights approach 30 ft. above MSL. The seaward face of the dunes is unvegetated and wind erosion is evident in many places. A private bathing beach is located beyond the high dunes and adjacent to the Weekapaug Breachway. A low dune in front of the bathhouse is unvegetated.

Storm History: In 1938 and again in 1954 all but the dunes at the western end of Atlantic Beach were swept clean of buildings. Bathing facilities and many summer homes were destroyed and washed inland. In 1954 hurricane damages approached $3 million. Dune crest heights along most of the beach are at present only slightly above the 1938 hurricane stillwater levels. All but the few residences built on the high dunes to the east are consequently vulnerable to severe storm damage. While the dune will provide storm protection to development behind the pond, past experience suggests that the barrier itself will be swept clean and that much damage will be caused by debris washed off the barrier and across the pond.

RECOMMENDATIONS:

1. Prospective buyers of barrier property should be informed of the barrier's vulnerability to storm damage.
2. Town ordinances protecting dunes and requiring walkovers from back dune residences to the beach should remain in force.
3. A dune stabilization program should be undertaken to prevent further erosion of the ocean side slope of the high dunes at the eastern end of the barrier. Public access to these areas should be prohibited.
4. The state and town should cooperate in solving problems caused by the heavy use of Misquamicut State Beach. User fees should be levied and shared with the town. Traffic problems will require careful management. Recreators should be warned and detoured to other areas when the State Beach is filled to capacity. They should be intercepted on all major roads leading to the beach.

Quonochontaug Barrier
(Westerly Portion)
Length: 1.1 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	19.0	1,555 ft.	7	$ 12,870
2.	Private Conservation	16.1	---	1	5,250
3.	Private Urban Development	0.3	---	1	3,500

	Acreage	Ocean Shoreline	No. of Lots	Assessment
4. Special District Beach	17.7	3,910 ft.	67	$ unavailable
5. State Conservation	9.3	500 "	4	exempt
TOTALS	62.4	5,965 ft.	80	$ 21,620

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	7
2. Other, Rhode Island	0
3. Out-of-state	0
TOTAL	7

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	35.8 acres
2. Secondary Growth	15.8 acres
3. Wetland	10.8 acres

HURRICANE DAMAGE:

1. 1938	Unavailable
2. 1954	$81,000 (includes Charlestown portion)

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938	12 ft. above mean sea level
2. 1954	11.5 ft. above mean sea level
3. Standard Project	16.5 ft. above mean sea level

DUNE CREST ELEVATION:

1. West end — 13 ft. above mean sea level
2. East end — 18.5 ft. above mean sea level

Natural Features and Development: The western two thirds of this barrier is in the town of Westerly and the remainder in Charlestown. Nearly all of the Westerly portion is administered as a Conservation Area by the Weekapaug Fire District. The dune is well vegetated and has only one washover at its extreme western end. The dunes increase in height to the east and reach 20 feet above MSL towards the middle of the barrier. These dunes like those at the western end of Atlantic Beach are remnants of the high dunes common before the 1938 hurricane. The pond side of the dune is densely vegetated in shrubs and small trees and the ocean side is well vegetated by beachgrass. A road for four wheel drive vehicles runs behind the dune from the western end of the barrier to the breachway.

Storm History: Quonochontaug barrier as a whole sustained $81,000 in property damages during the 1954 hurricane (1938 data is not available). The barrier west of the breachway has not been redeveloped.

RECOMMENDATIONS:

1. The use of this barrier as a private Conservation Area open to the public is desirable.
2. Should the Quonochontaug Fire District wish to assure this barrier's future as a Conservation Area it can negotiate a conservation easement with the town or state. The time period covered by such an easement could be flexible and the

town would be authorized to lower the area's tax assessment under Chapter 44-27, General Laws of 1968. A negotiated easement need not involve modification of existing use restrictions and might provide for state or municipal assistance in management and policing (see Vol. I, pp. 77-83 for additional information on easements).

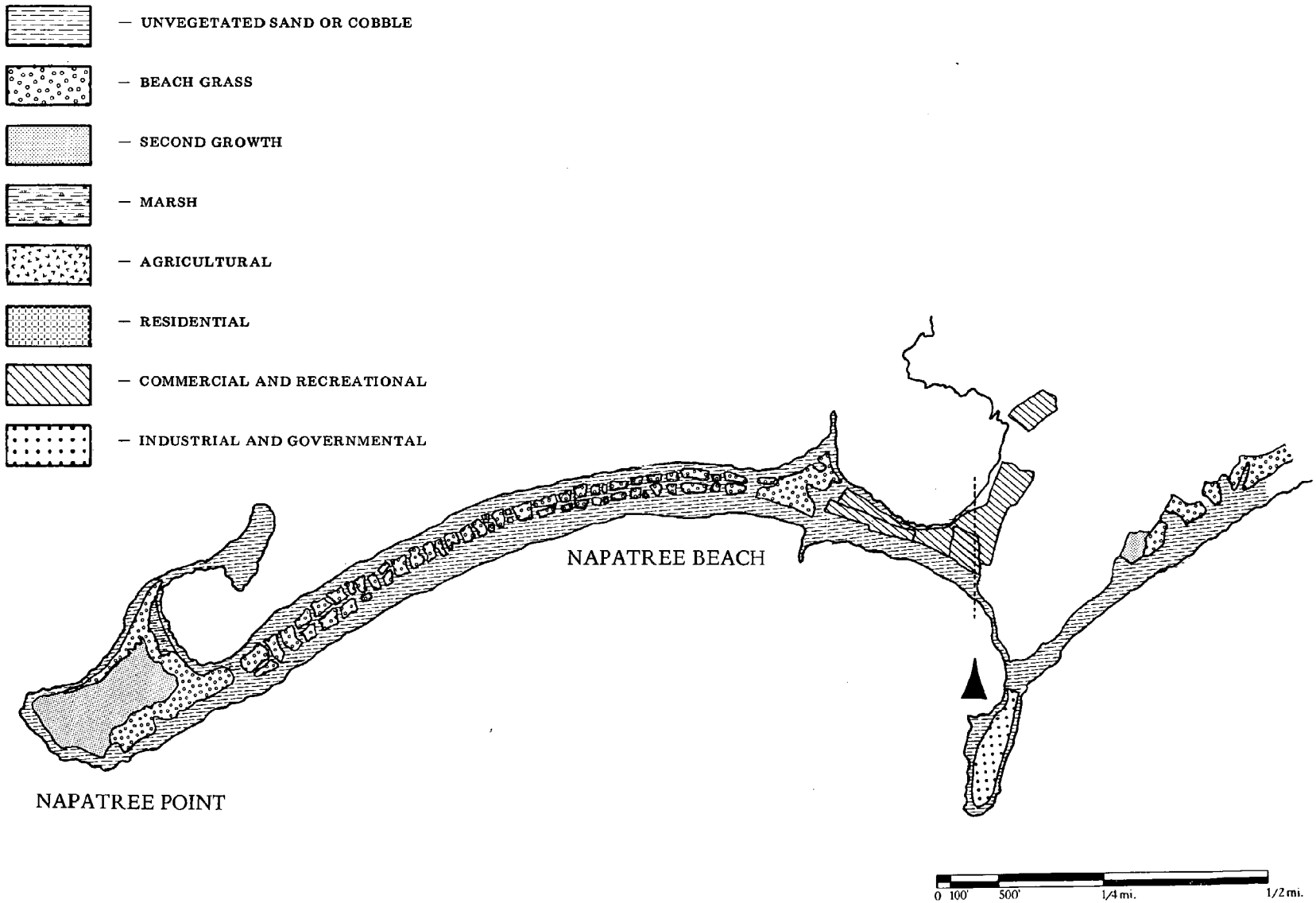
3. The town could protect the future of the Conservation Area by rezoning it for conservation and thereby closing it to development.

RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

NAPATREE POINT BARRIER



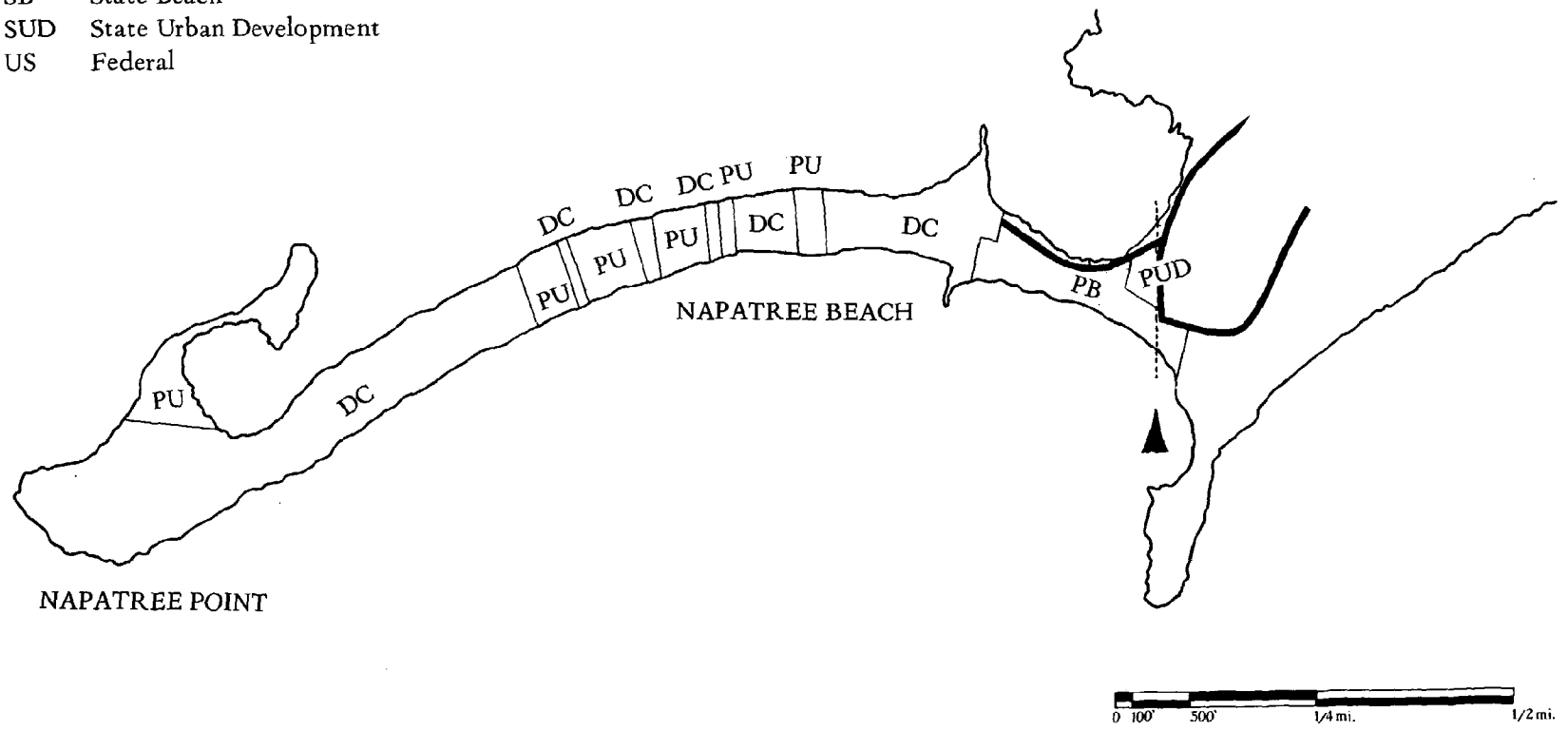
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

NAPATREE POINT BARRIER

PU	Private Undeveloped
PC	Private Conservation
PB	Private Beach (commercial or club)
PLD	Private Limited Development
PUD	Private Urban Development
TC	Town Conservation
TB	Town Beach
DC	Special District Conservation
DB	Special District Beach
SC	State Conservation
SB	State Beach
SUD	State Urban Development
US	Federal



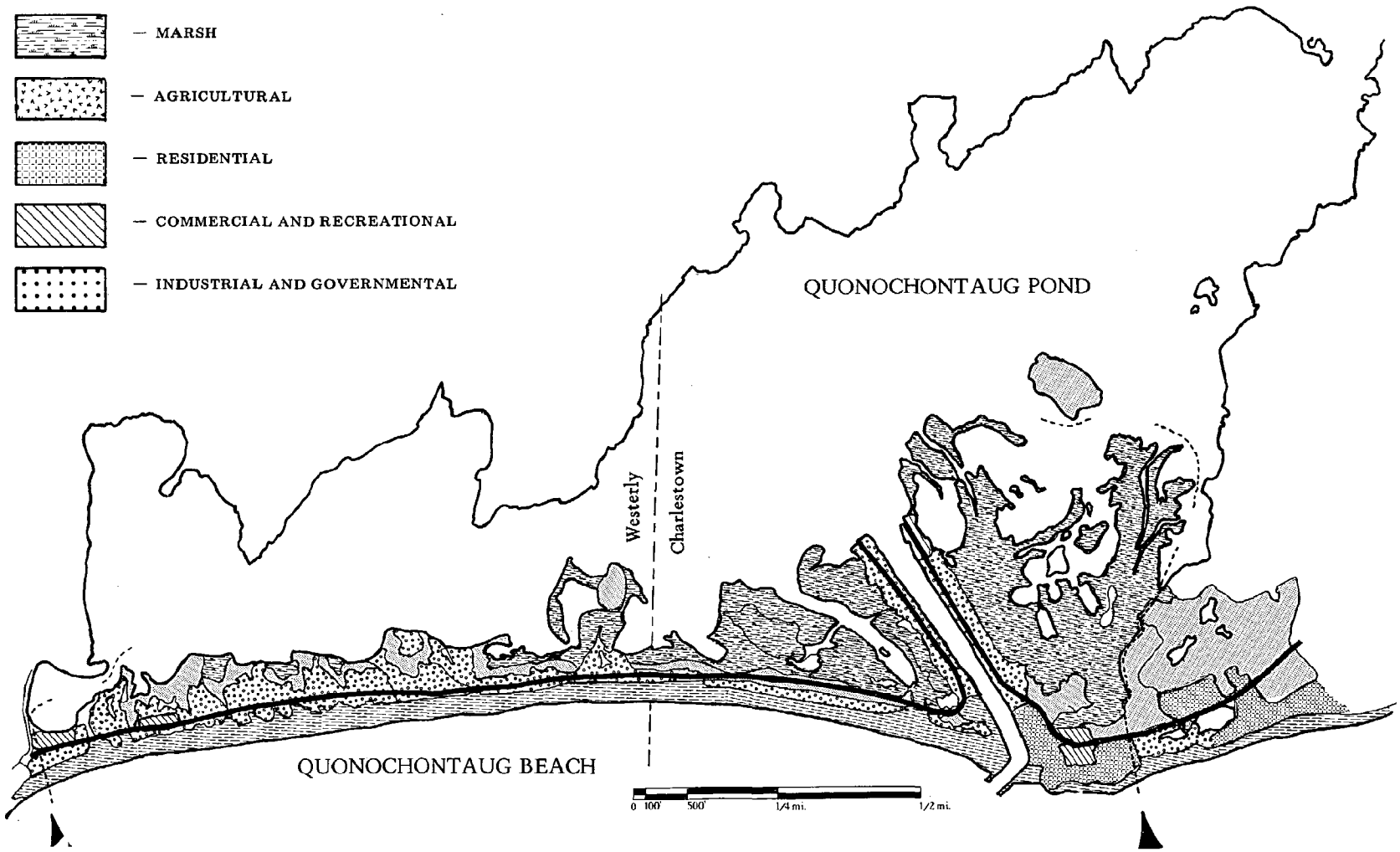
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

QUONOCHONTAUG BARRIER

- UNVEGETATED SAND OR COBBLE
- BEACH GRASS
- SECOND GROWTH
- MARSH
- AGRICULTURAL
- RESIDENTIAL
- COMMERCIAL AND RECREATIONAL
- INDUSTRIAL AND GOVERNMENTAL



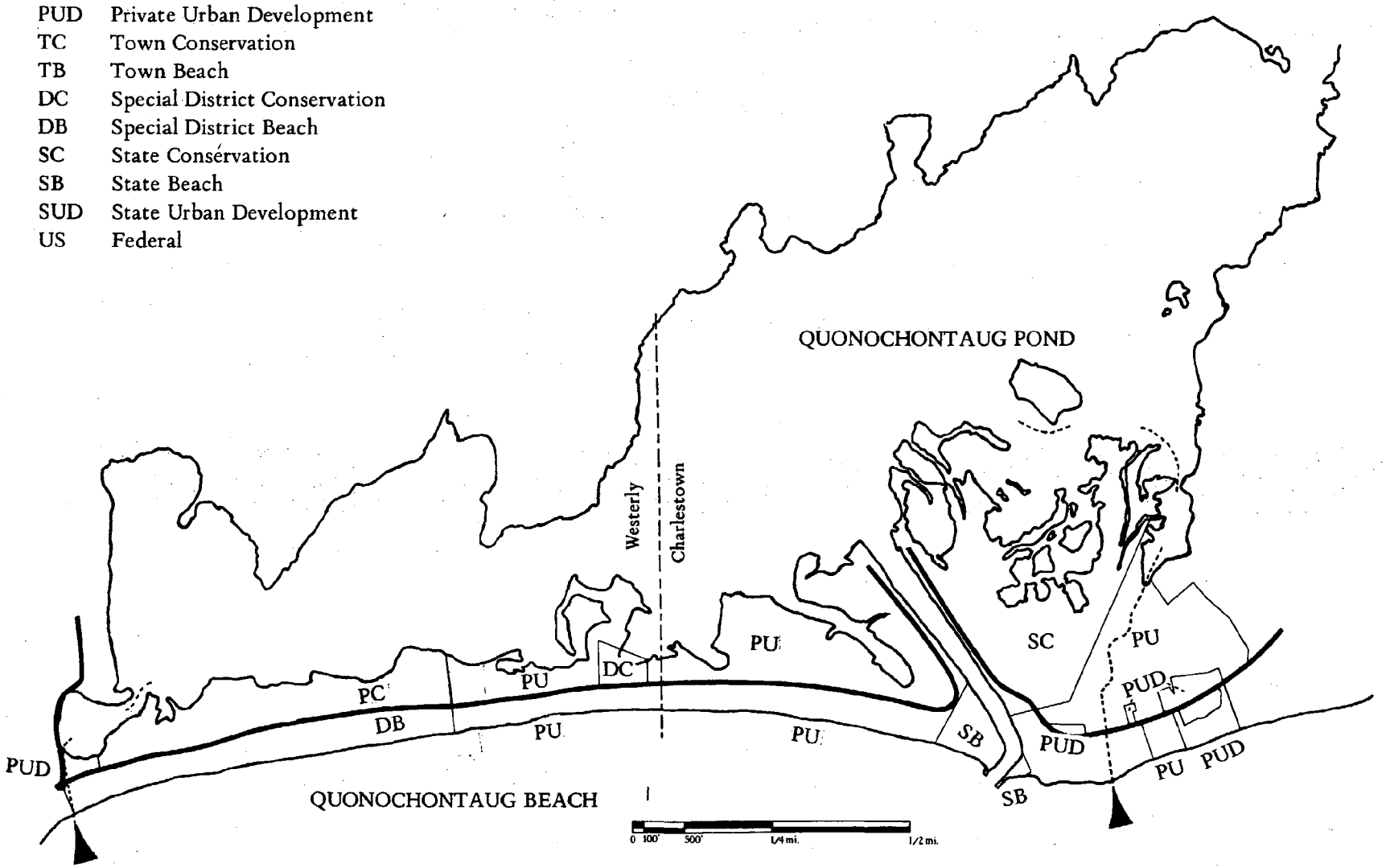
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

QUONOCHONTAUG BARRIER

PU	Private Undeveloped
PC	Private Conservation
PB	Private Beach (commercial or club)
PLD	Private Limited Development
PUD	Private Urban Development
TC	Town Conservation
TB	Town Beach
DC	Special District Conservation
DB	Special District Beach
SC	State Conservation
SB	State Beach
SUD	State Urban Development
US	Federal



TOWN OF CHARLESTOWN

BARRIER BEACHES:

1. Quonochontaug Barrier (Charlestown portion)
2. Michel, Garden and East Pond Barrier (including Central Beach)
3. Ninigret Pond Barrier (East Beach and Charlestown Beach)

Total Length: 5.1 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*Assessment*
1.	Private Undeveloped	198	10,400 ft.	$ 105,000
2.	Private Conservation	---	---	---
3.	Private Beach	4	300 "	53,000
4.	Private Light Development	---	---	---
5.	Private Urban Development	22	1,700 "	305,000
6.	Town Conservation	---	---	---
7.	Town Beach	17	50 "	exempt
8.	Special District Conservation	---	---	---
9.	Special District Beach	---	---	---
10.	State Conservation	330	13,400	exempt
11.	State Beach	---	---	---
12.	State Urban Development	---	---	---
13.	Federal	27	1,200	exempt
	TOTALS	598	27,050	$ 463,000

* NOTE: This is approximately 2.2% of the assessed value of all property taxed by the town. It produces an annual tax revenue of $13,900.

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town residents	21
2.	Other, Rhode Island	37
3.	Out-of-state	78
4.	Unknown	25
	TOTAL	161

Municipal Controls: Charlestown has no zoning ordinances. The town participates in the permanent program of the National Flood Insurance Program. However, Charlestown is overdue in making the necessary modifications to its building code and there is a definite possibility that it will withdraw from the program in the near future. A town ordinance prohibits vehicles from driving on beaches but is not enforced.

Comprehensive Community Plan: The Charlestown community plan was completed in 1971. It has yet to be formally adopted and without town zoning it is unlikely that it will have any significant influence over community development.

General Problems: The State of Rhode Island and the federal government own large tracts of land in Charlestown. The town receives no compensation for the loss in property tax revenues that this entails and, therefore, does not favor further public acquisition. Town officials

feel that the state owned beaches are poorly managed and compete unfairly with tax paying commercial facilities.

Charlestown officials are highly critical of the present situation at the Ninigret Conservation Area. They feel that the area is inadequately policed, is suffering from severe misuse and competes unfairly with the adjacent private beaches. Heavy summer traffic along the access road from Route 1 is an inconvenience to local residents.

Quonochontaug Barrier
(Charlestown Portion)
Length: 0.9 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Private Undeveloped	65.5	3,150 ft.	28	$ 17,055
2. Private Beach	4.1	335 "	12	52,875
3. Private Urban Development	5.5	490 "	56	147,975
4. State Conservation	49.2	280 "	24	exempt
TOTALS	124.3	4,255 ft.	120	$ 217,905

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	4
2. Other, Rhode Island	11
3. Out-of-state	13
4. Unknown	12
TOTALS	40

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	17.1 acres
2.	Secondary Growth	16.1 acres
3.	Wetland	103.5 acres

HURRICANE DAMAGE:

1.	1938	Unavailable
2.	1954	$81,000 (includes Westerly portion)

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	12.0 ft. above mean sea level
2.	1954	11.5 ft. above mean sea level
3.	Standard Project	16.5 ft. above mean sea level

DUNE CREST ELEVATION:

1.	High dune on west side of breachway	21.5 ft. above mean sea level

Natural Features and Development: The Charlestown portion of Quonochontaug barrier west of the breachway is undeveloped. The dune is high and well stabilized by beachgrass on the ocean side and a dense growth of shrubs and small trees on the pond side. A road behind the dune for four wheel drive vehicles leads to the breachway. Many vehicles, however, drive along the beach which is steep and narrow near the breachway. In October, when investigators visited this barrier, vehicles had crowded the dune and eroded the dune base. A widening strip of beachgrass was being destroyed and the dune face had been weakened. With the exception of a small area owned by the state, this portion of the

barrier is owned by the Nopes Island Association which administers it as a Conservation Area.

On the eastern side of the breachway Quonochontaug barrier is administered by the Shelter Harbor Fire District and has several houses on it. The extensive salt marshes on the pond side are a state conservation area.

Storm History: Structures on Quonochontaug barrier were severely damaged by the 1954 hurricane. Records are not available for damages from the 1938 hurricane.

RECOMMENDATIONS:

1. Should the Nopes Island Association or the Shelter Harbor Fire District wish to assure the Quonochontaug barrier's future as a Conservation Area they can negotiate a conservation easement with the town or state. The time period covered by such an easement could be flexible and the town would be authorized to lower the area's tax assessment under Chapter 44-27, General Laws of 1968. A negotiated easement need not involve modification of existing use restrictions and might provide for state or municipal assistance in managing and policing (see Vol. I, pp.77-83 for additional information on easements).
2. The town could insure the future of the Quonochontaug barrier as a Conservation Area by zoning it for conservation and thereby closing it to development.
3. Prospective buyers of barrier property should be informed of the barrier's vulnerability to storm damage. No further

development or redevelopment after destruction of existing structures by a storm should be permitted.

4. Special attention should be given to damage being done by vehicles to the ocean side face of the dunes on the western side of the breachway. Vehicles should be strictly confined to the beach and the back dune road.

Michel, Garden and East Pond Barrier
(including Central Beach)
Length: 0.3 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	8.4	1,765 ft.	93	$ 12,540
2.	Private Urban Development	0.2	---	1	4,270
	TOTALS	8.6	1,765 ft.	94	$ 16,810

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	3
2.	Other, Rhode Island	2
3.	Out-of-state	9
	TOTAL	14

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	5.6 acres
2.	Secondary Growth	1.5 acres
3.	Wetland	None

HURRICANE DAMAGE:

1.	1938	Unavailable
2.	1954	Unavailable

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	12 ft. above mean sea level
2.	1954	11.5 ft. above mean sea level
3.	Standard Project	16.5 ft. above mean sea level

DUNE CREST ELEVATION:

1.	Parking lot in front of Michel Pond	10 ft. above mean sea level
2.	Western side of Garden Pond	9 ft. above mean sea level

Natural Features and Development: There are three small ponds in this area. Michel Pond, the largest and most westerly of the three is within the lands administered by the Shelter Harbor Fire District. Residential development is heavy from Michel Pond to Quonochontaug barrier and access is limited to residents and their guests. Michel Pond has no natural dune. A parking lot has been made by filling between a low seawall and the pond. To the east of Michel Pond a low dune well vegetated by beachgrass leads past the two smaller ponds. Portions of this dune have been leveled to build parking lots. The land surrounding these ponds is privately owned and is developed as a residential area.

Storm History: Several homes between and behind these ponds were

destroyed or heavily damaged by the 1938 hurricane. Lesser damages were sustained in 1954. The parking lot in front of Michel Pond is flooded during storms and requires frequent maintenance.

RECOMMENDATIONS:

1. No building or further expansion of the present parking lots should be permitted on this barrier.
2. Boardwalks over the dune to the beach are needed at access points to the shore.

Ninigret Pond Barrier
(East Beach Portion)
Length: 3.2 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	89.7	3,560 ft.	42	$ 25,195
2.	Private Urban Development	7.8	---	11	42,205
3.	State Conservation	236.0	12,235 "	21	exempt
4.	Federal	27.1	1,200 "	4	exempt
	TOTALS	360.6	16,995 ft.	78	$ 67,400

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	7
2.	Other, Rhode Island	6
3.	Out-of-state	16

4.	Unknown	1
	TOTAL	30

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	110.9 acres
2.	Secondary Growth	59.1 acres
3.	Wetland	65.2 acres

HURRICANE DAMAGE:

1.	1938	Unavailable
2.	1954	$358,000 (includes Charlestown Beach)

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	16.5 ft. above mean sea level
2.	1954	12 ft. above mean sea level
3.	Standard Project	11.5 ft. above mean sea level

DUNE CREST ELEVATION:

1.	Unvegetated dune in developed area	9 ft. above mean sea level
2.	Opposite Conservation Area parking lot	9 ft. above mean sea level
3.	Western section	10 ft. above mean sea level
4.	Central section	13.5 ft. above mean sea level
5.	Washover central section	7 ft. above mean sea level
6.	Eastern section	12 ft. above mean sea level
7.	By breachway	11.5 ft. above mean sea level

Natural Features and Development: Two private beaches are located at the western end of the barrier. Parking, bathhouses, lifeguards and sanitary facilities are provided to paying customers. A number of summer cottages, many of which are elevated on pilings, are scattered along the pond side of the access road. The dune in this area has been much modified by development and heavy use and is largely unvegetated. The greatest part of the Ninigret Pond barrier west of the breachway is a State Conservation Area. The Conservation Area parking lot lies a few hundred yards east of the cottages. A large area around the parking lot has been devegetated by heavy vehicular and foot traffic. Primitive sanitary facilities are provided near the parking lot. Swimming in the Conservation Area is unsupervised but popular. Policing is limited to occasional visits by Department of Natural Resources enforcement officers and enforcement of the posted regulations is grossly inadequate.

The conditions of the dune and the beachgrass cover in the Conservation Area are generally poor. This is due in large part to the number of off road vehicles that drive in the dune field. Many vehicles obey the rules and keep to the beach and the marked track that runs down the middle of the barrier, but enough cut across the dune to damage significant areas of beachgrass. Among the worst offenders are small beach buggies designed for high speed joy riding across the dunes.

Rhode Island Mobile Sportfishermen, an organization whose members operate off road vehicles along the barriers, has its own dune stabilization and restoration projects. Each winter members place discarded Christmas trees and erect snow fence along the lower dunes and across badly eroded areas. Similar efforts are made by the Department of

Natural Resources. Much of this work, however, is later damaged or destroyed by vehicles which use blowouts as crossover points from the track to the beach.

Along several stretches of the barrier the dune has been cut back by waves. Studies made over the past ten years by geologists at the URI Graduate School of Oceanography suggest that the beach may be eroding and that the volume of sand on the beach is maintained by a steady wave erosion of the dunes. Another problem in the Conservation Area is a number of die offs of beachgrass unrelated to erosion by people or waves. The reasons for these die offs are not known.

The breachway into Ninigret Pond has been the subject of much controversey. In the seventeenth century cargo ships could enter the pond and unload at docks on the mainland side. Rapid silting in the breachway, however, has since limited access to all but small boats. In the early 1950's a permanent breachway was dredged and stabilized by riprap and two short jetties were built out from the beach. The increased flow of seawater into the pond caused a number of problems. Water flowing into the pond on the flood tide carries quantities of suspended sand which are deposited in the pond. The volume of the pond has, therefore, decreased and the breachway has silted up. The increase in the pond's salinity made it possible for new marine species to migrate into the pond. Among these were predators that reduced the pond's oyster population. At present the breachway is of limited use. Silting and the collapse of portions of the jetties into the channel make it hazardous to boats.

Storm History: East Beach was heavily built up with summer

cottages prior to the 1938 hurricane. These were all destroyed and washed across the pond. In 1954 homes built on the barrier were again destroyed and damages of $358,000 were sustained. When development began for the third time the state condemned most of the barrier and since then has managed it as a conservation area. The present poor condition of the dunes reduces this barrier's value as a storm buffer for the pond and back pond properties.

RECOMMENDATIONS:

1. This barrier is unsuitable for residential development and further residential development or redevelopment after destruction of existing structures by a storm should be prohibited. The barrier should be classified as a flood hazard zone.
2. Prospective buyers of barrier property should be informed of the area's vulnerability to storm damage.
3. A vegetated dune should be developed and protected in front of the built-up section of the barrier. This would provide some storm protection and enhance the aesthetic value of the area.
4. Due to a lack of Natural Resources enforcement officers and the absence of a law protecting dune areas the condition of the State Conservation Area is poor. Much good would be done if the rules posted at the entrance to the area were enforced. These are as follows:

   1. Camping permitted only in designated sand lot.

      A. Camping units must have completely self-contained water supply and sewage disposal.

B. No tents or tent trailers permitted.

2. *Travel to sand lot must be over designated sand route.*
   Parking along sand route prohibited.
3. *Four (4) night maximum for camping.*
4. *Vehicles other than camping units must leave area at 11 P.M.*
5. *Vehicles are prohibited on beach front May 1-Sept 13.*
6. *Alcoholic beverages prohibited.*
7. *Open fires prohibited.*
8. *Animals must be leashed.*
9. *Day parking in designated areas only.*
10. *Disposal of home refuse prohibited.*
11. *Lawful directions of enforcement officers must be obeyed.*

5. A determined effort must be made to revegetate eroded areas and to build up existing dunes. Such efforts, however, will be fruitless if rules protecting dune areas from vehicles are not enforced.

Ninigret Pond Barrier
(Charlestown Beach Portion)
Length: 0.7 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	34.1	1,920 ft.	127	$ 50,270
2.	Private Urban Development	8.4	1,165 "	30	110,165

	Acreage	Ocean Shoreline	No. of Lots	Assessment
3. Town Beach	17.1	50 ft.	3	exempt
4. State Conservation	44.3	880 "	26	122,630
TOTALS	103.9	4,015 ft.	186	$ 160,435

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	7
2. Other, Rhode Island	18
3. Out-of-state	40
4. Unknown	12
TOTAL	77

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	27.5 acres
2. Secondary Growth	None
3. Wetland	44.2 acres

HURRICANE DAMAGE:

1. 1938	Unavailable
2. 1954	$358,000 (includes East Beach)

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938	16.5 ft. above mean sea level
2. 1954	12 ft. above mean sea level
3. Standard Project	11.5 ft. above mean sea level

DUNE CREST ELEVATION:

1. Half way down beach (in front of homes) 10 ft. above mean sea level

Natural Features and Development: The portion of the Ninigret Pond barrier from the eastern side of the breachway to the South Kingstown town line is known as Charlestown Beach. The state maintains a large parking area near the breachway which is reserved for camper trucks. The access road to the parking lot is unpaved and cuts into the back base of a low and poorly vegetated dune. Vehicle traffic from the state parking lot to the beach has damaged the dune. To the east the barrier is developed as a residential area. Houses have been built both on and behind the dune. In many places there is no vegetation and the dune crest is extremely low. Nearly all the houses have been built on stilts with the floor level about eight feet above the ground. The town beach is on the pond side of the barrier near the South Kingstown town line. It includes a large gravelled parking lot, sanitary facilities and provides lifeguards. Resident season passes cost $4.00 and the beach is open to nonresidents for a daily fee.

Storm History: Charlestown Beach is especially vulnerable to hurricane damage. Dune crests are well below the 1938 and 1954 still-water flood levels. Residential development on the barrier is at a great risk to life and property.

RECOMMENDATIONS:

1. This barrier is highly unsuitable for residential development.

Further development or redevelopment after destruction of existing structures by a storm should be prohibited. Flood hazard zoning should be applied to the barrier.

2. All structures on the barrier dune should be removed. Charlestown Beach should be acquired by the state or town. As soon as funds are available presently developed lots should be purchased and the land held for conservation and light recreation.
3. Prospective buyers of barrier property should be informed of the barrier's vulnerability to storm damage.
4. Efforts should be made to build up and protect a dune along the length of the beach. Private owners should be assisted in stabilization programs.
5. Vehicles should be prohibited from the beach during the summer months. Vehicular access to the beach from the state parking lot should be limited to a stabilized roadway.

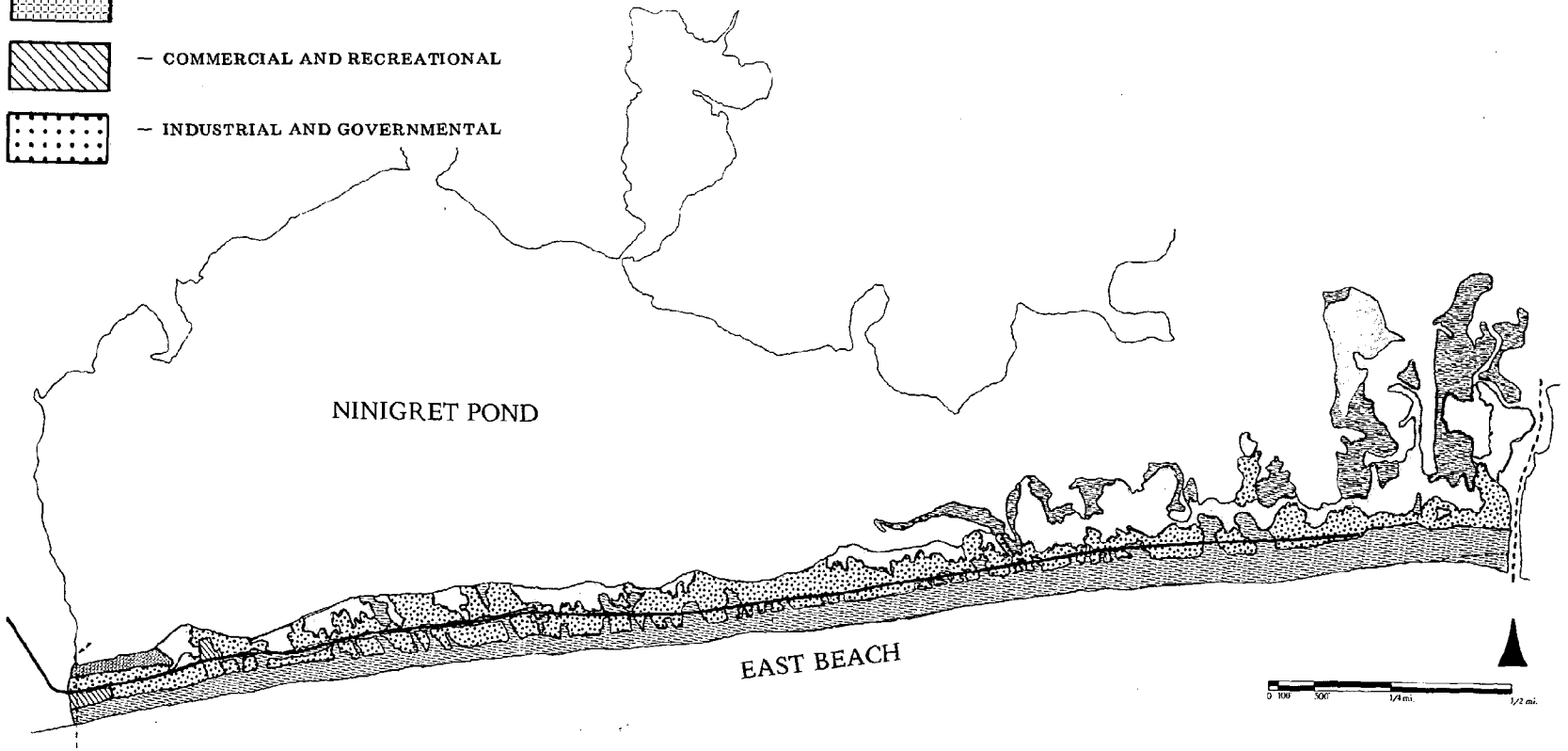
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

NINIGRET BARRIER (WEST)

- UNVEGETATED SAND OR COBBLE
- BEACH GRASS
- SECOND GROWTH
- MARSH
- AGRICULTURAL
- RESIDENTIAL
- COMMERCIAL AND RECREATIONAL
- INDUSTRIAL AND GOVERNMENTAL



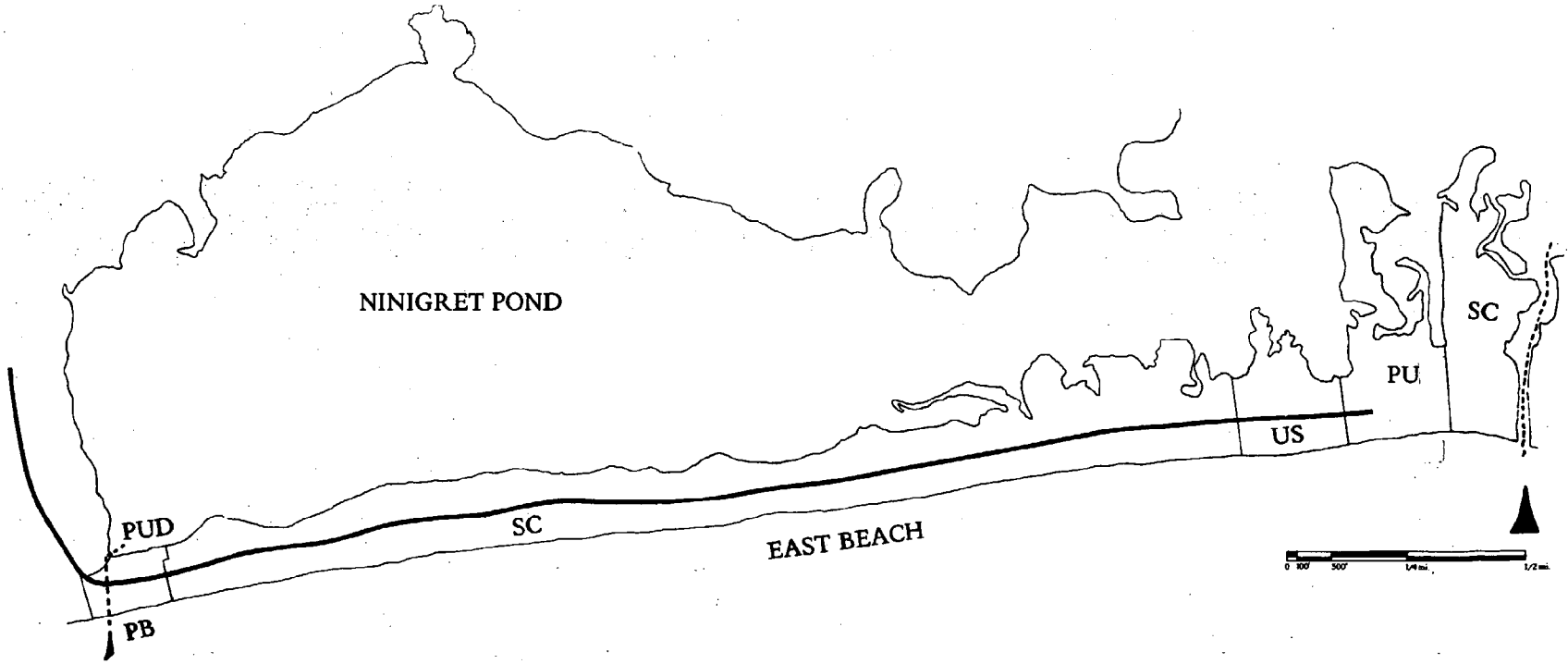
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

NINIGRET BARRIER (WEST)

PU	Private Undeveloped
PC	Private Conservation
PB	Private Beach (commercial or club)
PLD	Private Limited Development
PUD	Private Urban Development
TC	Town Conservation
TB	Town Beach
DC	Special District Conservation
DB	Special District Beach
SC	State Conservation
SB	State Beach
SUD	State Urban Development
US	Federal

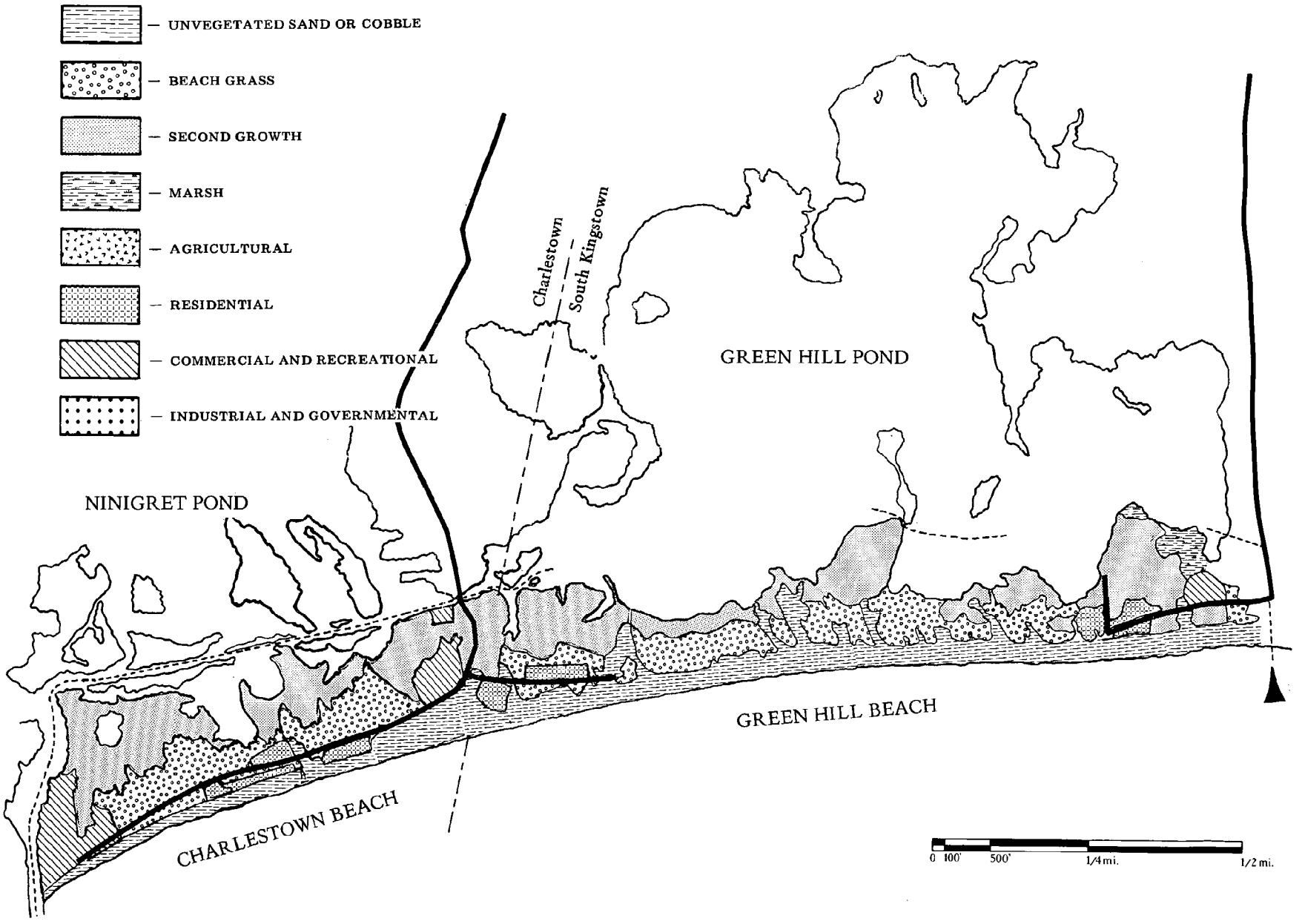


RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

NINIGRET (EAST) AND GREEN HILL BARRIERS



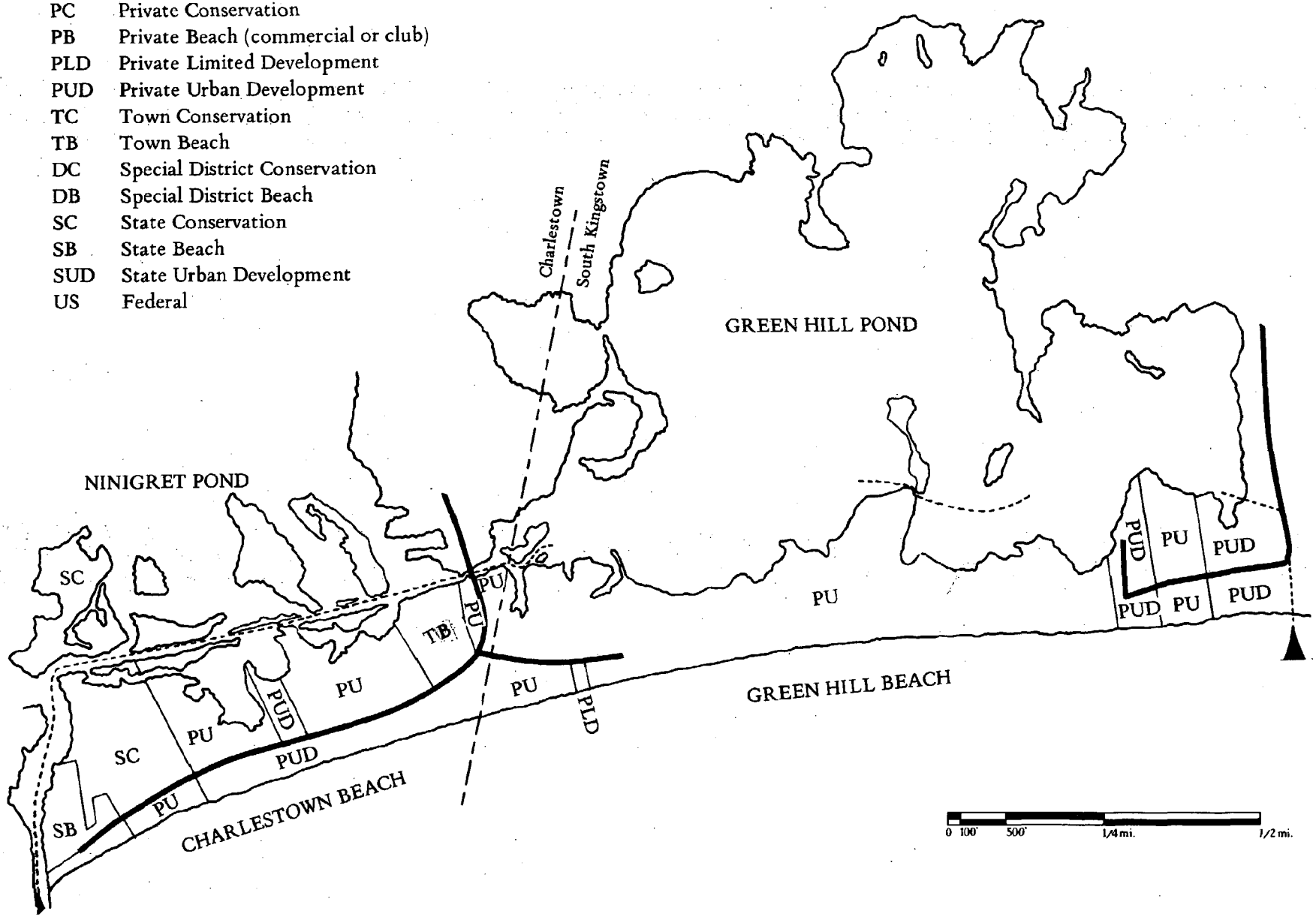
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

NINIGRET (EAST) AND GREEN HILL BARRIERS

PU	Private Undeveloped
PC	Private Conservation
PB	Private Beach (commercial or club)
PLD	Private Limited Development
PUD	Private Urban Development
TC	Town Conservation
TB	Town Beach
DC	Special District Conservation
DB	Special District Beach
SC	State Conservation
SB	State Beach
SUD	State Urban Development
US	Federal



TOWN OF SOUTH KINGSTON

BARRIER BEACHES:

1. Green Hill Pond Barrier (Green Hill Beach)
2. Trustom and Card Pond Barriers
3. Matunuck Barrier (East Matunuck Beach)

Total Length: 3.7 miles

LAND USE:

	Acreage	*Ocean Shoreline*	*Assessment*
1. Private Undeveloped	123	9,400 ft.	$ 574,000
2. Private Conservation	27	2,600 "	---
3. Private Beach	---	---	---
4. Private Light Development	20	2,200 "	60,000
5. Private Urban Development	21	1,800 "	526,000
6. Town Conservation	---	---	---
7. Town Beach	---	---	---
8. Special District Conservation	1	100 "	---
9. Special District Beach		---	---
10. State Conservation	80	---	---
11. State Beach	54	2,900 "	___
12. State Urban Development	---	---	---

	Acreage	Ocean Shoreline	Assessment
13. Federal	---	---	$ ---
TOTALS	326	19,000 ft.	$1,160,000*

*NOTE: This is approximately 1.1% of the assessed value of all property taxed by the town. It produces an annual tax revenue of $42,000.

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	13
2. Other, Rhode Island	51
3. Out-of-state	53
TOTAL	117

Municipal Controls: With the exception of the state beach at East Matunuck, South Kingstown's barrier beaches are zoned for residential development on acre and half acre lots. Building code restrictions are applied to all construction within a defined flood hazard zone under the provisions of the National Flood Insurance Program. A 1955 zoning ordinance prohibiting residential development of shore areas highly vulnerable to storm damage was dropped when town zoning ordinances were amended in 1966. These areas, which include the barrier beaches, are now open to development. Town ordinances close the beaches to the public after nightfall and prohibit their use by vehicles. These ordinances are not enforced, however, and vehicular use of beaches is quite heavy in some seasons.

Comprehensive Community Plan: A comprehensive plan was prepared

in 1965 and is presently being revised. Few of the objectives or recommendations of the plan are reflected in current administrative policy and practice. In the plan, beach areas at Green Hill, Trustom and Card Ponds which are now zoned residential are recommended for public acquisition and preservation as recreational open space.

Green Hill Pond Barrier
(Green Hill Beach)
Length: 1.4 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Private Undeveloped	85.8	6,040 ft.	193	$ 521,310
2. Private Urban Development	12.9	1,100 "	25	252,138
3. Special District Conservation	0.6	120 "	1	2,400
TOTALS	99.3	7,260 ft.	219	$ 775,848

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	8
2. Other, Rhode Island	40
3. Out-of-state	46
TOTAL	94

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	25.3 acres
2. Secondary Growth	23.9 acres

3.	Wetland	28.7 acres

HURRICANE DAMAGE:

1.	1938	$2.5 million, all homes destroyed, 48 deaths
2.	1954	$27,000, all homes destroyed

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	12.0 ft. above mean sea level
2.	1954	11.5 ft. above mean sea level
3.	Standard Project	16.5 ft. above mean sea level

DUNE CREST ELEVATION:

1.	West end	9.5 ft. above mean sea level
2.	West end (high dune)	15 ft. above mean sea level
3.	West end (blowout)	9.5 ft. above mean sea level
4.	Middle	9 ft. above mean sea level
5.	East end	11.0 ft. above mean sea level
6.	East end (east of access road)	7.5 ft. above mean sea level
7.	East end (active breachway)	1.5 ft. above mean sea level

Natural Features: On the Green Hill Pond barrier a sand beach is backed by a low and irregular dune. Dune crest heights range between fifteen and seven feet above mean sea level. Blowouts are frequent and several washovers cut across the central part of the barrier. Beachgrass cover varies considerably in density and is most abundant in the central section of the barrier where human use and modification has been

slight. Along many of its less elevated stretches the beach rises in a smooth curve to the crest of the barrier. In these areas there is no vegetated seaward dune slope. A level area of varying width behind the dune is well vegetated by beachgrass and shrubs. Secondary growth is dense on only a few isolated outcrops of glacial till along the edge of the pond. Green Hill Pond is surrounded by extensive marshes.

Studies made by geologists from the Graduate School of Oceanography show that of four South Shore beaches studied Green Hill has suffered the most severe erosion. Over the ten year period of the study the width of the beach has decreased by thirty feet and one third of the volume of beach material between the dune base and the water's edge has been lost.

Development: Although both the 1938 and 1954 hurricanes had destroyed all buildings on the barrier, Green Hill Beach was again opened to development when South Kingstown amended its zoning ordinances in 1966. Construction began in the early summer of 1972 and by late fall more than a dozen homes had been completed and construction had begun on several others. Many of the new homes are built on the dune, substantial areas of which have been bulldozed and devegetated during construction. Houses have been built along the marsh and work has begun on others in the same area. There are 220 lots platted on the Green Hill barrier and most of these can be legally developed under South Kingstown zoning and building ordinances. Development is in full compliance with local ordinances. Only after several homes had been built did property owners on the barrier learn that a permit from the Coastal Council was also required. Seven of the owners have applied

for such a permit and their applications are under investigation.

New homes are concentrated on the eastern end of the barrier and are spreading down the beach to the west along both sides of the access road. Homes are also spreading down the beach from the developed section of the Ninigret barrier in Charlestown. A gravel access road is being extended to service the most easterly of these houses. The new houses are elevated on pilings. Water is supplied by the town at the owner's expense and sewage disposal is through individual leach fields. The town has no immediate plans to provide sewer lines on the barrier.

Storm History: The Green Hill barrier is one of the most vulnerable in the state to hurricane damage and erosion. The 1938 hurricane swept away the many homes that had been built on it. Forty-eight lives were lost and $2.5 million in property damage sustained. In 1954 the barrier was again swept clean. No lives were lost in the second hurricane and property damage was only $270,000 due to the small number of houses that had been rebuilt since 1938.

The present barrier profile is low and all houses built on it are highly vulnerable to destruction by hurricanes. The dune is severely eroded and is overtopped by waves during many severe storms. A comparatively mild nor'easter in November 1972 eroded a five foot vertical scarp to within thirty feet of a group of the new homes on the eastern end of the beach. The access road was threatened by flooding in several places, especially along the western end. Most of the people now building on the barrier are from out of state and it is likely that few of them are aware of the area's history of destruction by hurricanes. Green Hill Beach has been proved to be highly unsuitable

for residential development and the present building cannot be justified.

RECOMMENDATIONS:

1. Green Hill Beach is highly vulnerable to storm damage and is unsuitable for residential development. Further development or rebuilding after the destruction of structures by a storm should be prohibited.
2. All structures on the barrier dune should be removed.
3. As soon as funds are available presently developed lots should be purchased, the structures removed and the land held for conservation and light recreation.
4. No further filling of marsh should be permitted.
5. Prospective buyers of property on the barrier should be informed of the barrier's vulnerability to storm damage.
6. Devegetated areas should be planted in beachgrass and efforts should be made to build up the dune by erecting snow fence. Access across the dune to the beach should be over boardwalks.

Trustom and Card Ponds Barriers
(including Moonstone Beach)
Length: 1.7 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	23.4	3,370 ft.	7	$ 35,280
2.	Private Conservation	26.9	2,570 "	3	exempt
3.	Private Light Development	12.8	2,210 "	2	36,000

	Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
4. Private Urban Development	3.5	630 ft.	6	$ 183,630
TOTALS	66.6	8,780 ft.	18	$ 255,000

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	2
2. Other, Rhode Island	3
3. Out-of-state	4
TOTAL	9

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	19.4 acres
2. Secondary Growth	5.2 acres
3. Wetland	None

HURRICANE DAMAGE:

1. 1938	$1.85 million
2. 1954	$3,800

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938	12.5 ft. above mean sea level
2. 1954	12.0 ft. above mean sea level
3. Standard Project	16.0 ft. above mean sea level

DUNE CREST ELEVATION:

1.	West end Trustom Pond	5.5 ft. above mean sea level
2.	West end Trustom Pond (washover)	3 ft. above mean sea level
3.	Middle Trustom Pond	6 ft. above mean sea level
4.	East end Trustom Pond	8.5 ft. above mean sea level
5.	West end Card Pond	8 ft. above mean sea level
6.	East end Card Pond (in front of houses)	11.5 ft. above mean sea level

Natural Features and Development: These barriers are in comparatively good condition. The Trustom Pond barrier showed two severe washouts and five blowouts in the spring of 1972. Generally, beachgrass growth is vigorous. Snow fences along the access path to the beach from the end of Moonstone Beach Road limit damage to the dune. The path itself, however, has been eroded by foot traffic. The pond side half of the barrier is posted and this further reduces walking on the dune. There is a single house behind the dune at the end of Moonstone Beach Road.

The eastern portion of the Trustom Pond barrier, Moonstone Beach, is owned by the Audubon Society which manages the area as a wildlife refuge. South Kingstown leases 600 ft. of ocean frontage and a right-of-way from the Society for its town beach. A parking lot with a capacity of 175 cars has been built a short distance up the access road. Parking fees are charged to nonresidents at $1/day for weekdays and $2/day on weekends. The revenue from parking fees covers the salaries of a parking attendant and lifeguards.

The Card Ponds Barrier is a natural extension of Trustom Pond Barrier and the features of the two are very similar. Near the western end is a single washover which becomes active when the water level in the pond is high. Secondary vegetation is sparse and there is no marsh on the pond side. At the eastern end of the barrier are several houses that have survived both the 1938 and 1954 hurricanes. They are built behind a relatively well developed dune (crest approximately 12 ft. above MSL) which is thickly vegetated with beachgrass except for a path from each house to the beach.

Storm History: The Trustom and Card Ponds barriers have suffered severe damage during the major hurricanes of this century. Both were heavily developed with summer homes before the 1938 storm destroyed all buildings except for the small group of homes at the eastern end of Card Ponds. Dune crest elevations along these barriers are well below 1938, 1954 and Standard Project Hurricane flood levels.

RECOMMENDATIONS:

1. Beachgrass must be protected by building a boardwalk from the end of Moonstone Beach Road to the beach. People and vehicles should be confined to the beach and marked trails.
2. Permanent facilities for the town beach do not appear desirable as the barrier is also a Conservation Area of great beauty.
3. No further residential development or rebuilding after the destruction of structures by a storm should be permitted.
4. Existing houses should have boardwalks over the dune to the beach.

Matunuck Barrier
(East Matunuck Beach)
Length: 0.6 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	13.4	--- ft.	7	$ 17,730
2.	Private Light Development	7.5	---	1	23,670
3.	Private Urban Development	4.3	---	11	90,200
4.	State Conservation	79.5	---	2	exempt
5.	State Beach	54.2	2,900 "	1	exempt
	TOTALS	158.9	2,900 ft.	22	$ 131,600

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	3
2.	Other, Rhode Island	8
3.	Out-of-state	3
	TOTAL	14

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	17.7 acres
2.	Secondary Growth	49.1 acres
3.	Wetland	69.1 acres

HURRICANE DAMAGE:

1.	1938	Unavailable
2.	1954	$3.34 million (Matunuck Point to Point Judith)

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	12.5 ft. above mean sea level
2.	1954	12.0 ft. above mean sea level
3.	Standard Project	16.0 ft. above mean sea level

DUNE CREST ELEVATION:

1.	Center (State Beach)	4 ft. above mean sea level

Natural Features and Development: This barrier lies seaward of the eastern part of Potter Pond and western half of the Succotash Salt Marsh. It is owned by the state. The western end of the barrier is in its natural condition and the eastern half is a state bathing beach. The barrier is principally composed of cobbles and pebbles. There is no dune. The back slope of the western half of the barrier is sparsely vegetated and leads gently down to a freshwater wetland. Matunuck Beach Road crosses Succotash Salt Marsh and intercepts the barrier halfway down its length. The road runs east along the barrier towards Jerusalem. There has been considerable filling on either side of the road across the marsh to provide sites for small summer cottages and trailers. Where the road runs along the barrier there is no dune and no dune vegetation. Large parking lots have been made on the pond side of the road by filling the salt marsh. No fees are charged at the

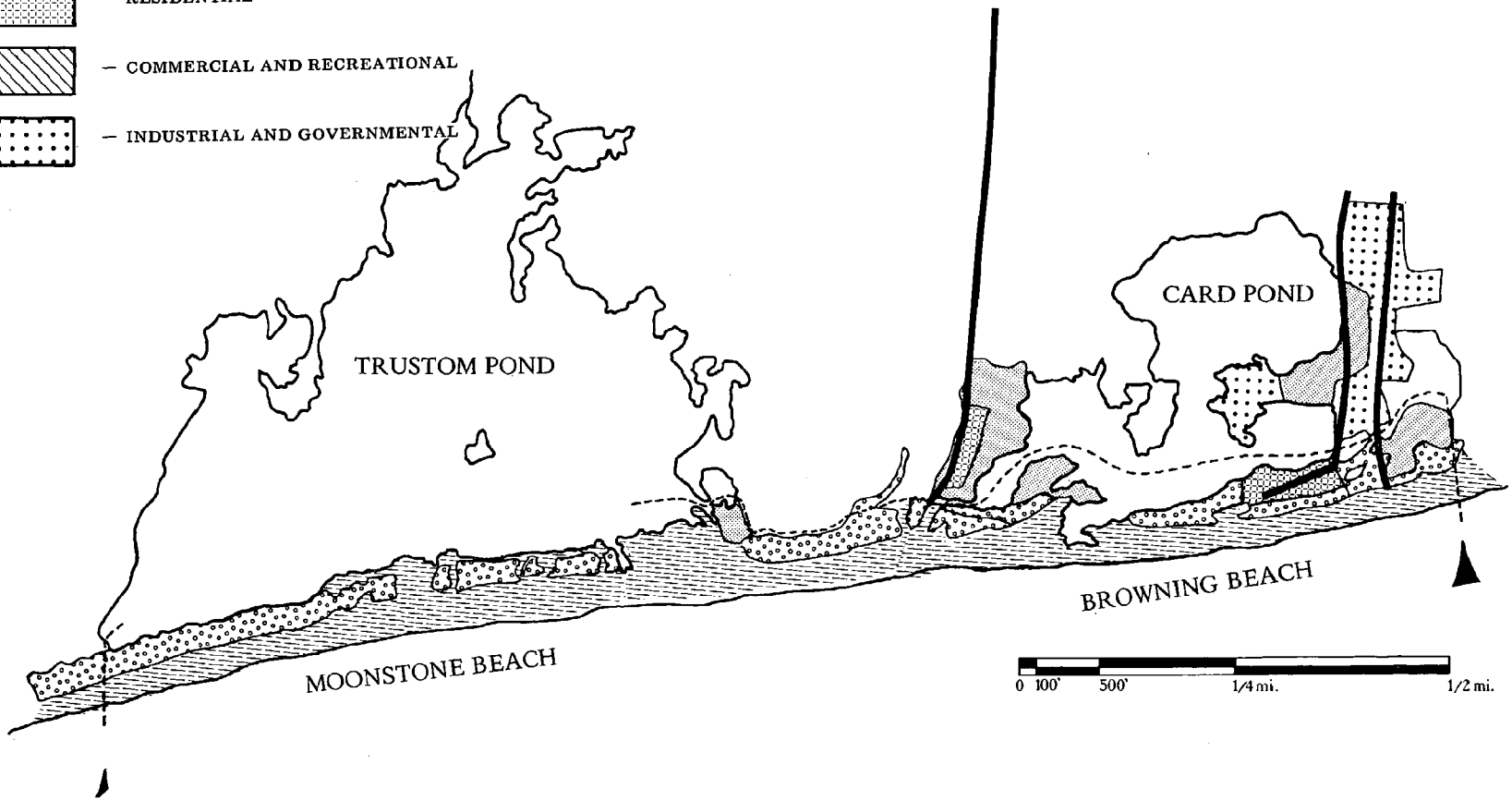
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

TRUSTOM AND CARD BARRIERS

- UNVEGETATED SAND OR COBBLE
- BEACH GRASS
- SECOND GROWTH
- MARSH
- AGRICULTURAL
- RESIDENTIAL
- COMMERCIAL AND RECREATIONAL
- INDUSTRIAL AND GOVERNMENTAL



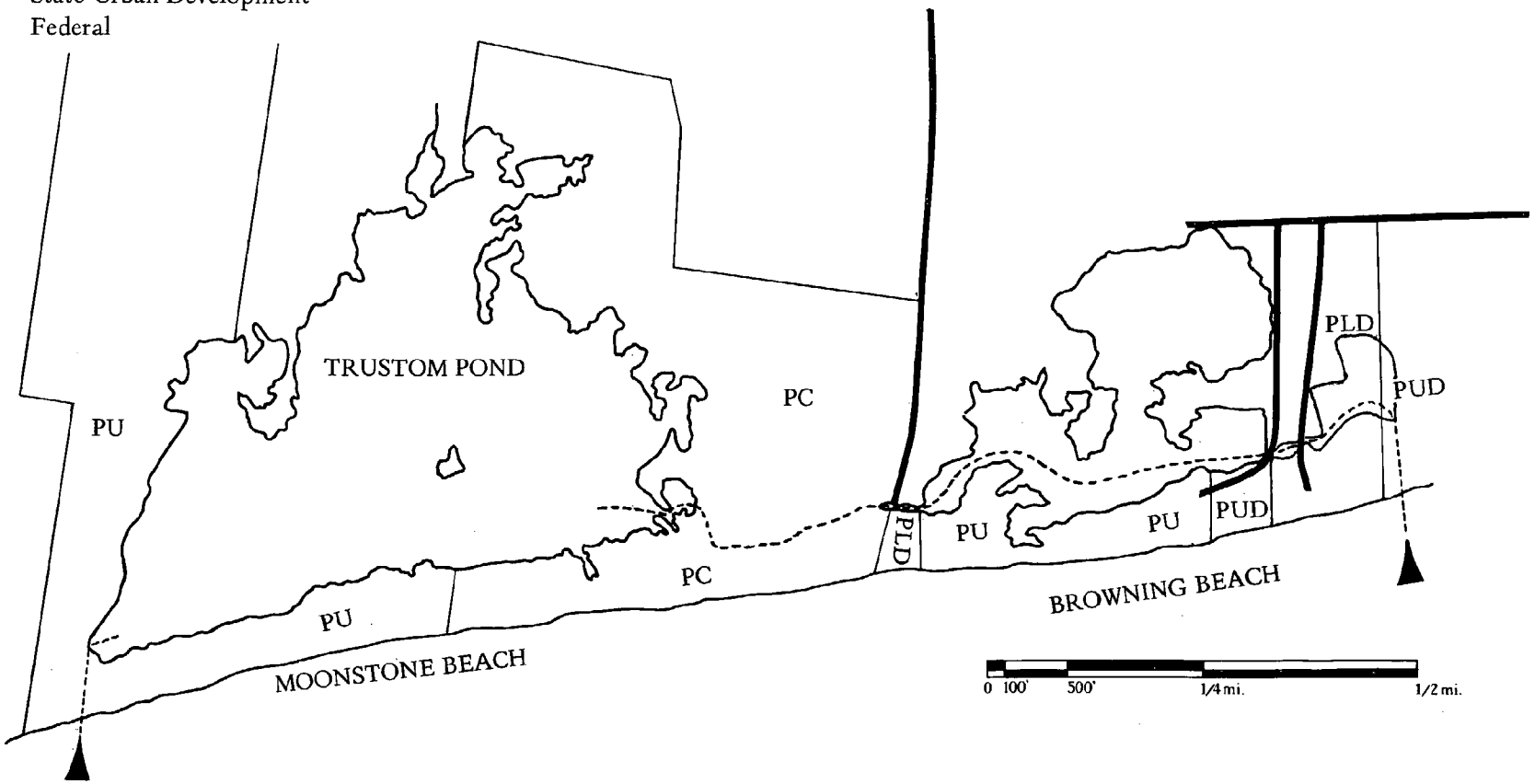
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

TRUSTOM AND CARD BARRIERS

PU	Private Undeveloped
PC	Private Conservation
PB	Private Beach (commercial or club)
PLD	Private Limited Development
PUD	Private Urban Development
TC	Town Conservation
TB	Town Beach
DC	Special District Conservation
DB	Special District Beach
SC	State Conservation
SB	State Beach
SUD	State Urban Development
US	Federal



State Beach. Lifeguards and portable sanitary facilities are provided during the summer.

Storm History: With no dune and a maximum elevation of only four feet above mean sea level East Matunuck Beach is vulnerable to even minor storms and is totally unsuitable for development.

RECOMMENDATIONS:

1. The construction of permanent facilities on the South Kingstown portion of this barrier should be prohibited.
2. The barrier's present recreational use should be continued.

TOWN OF NARRAGANSETT

BARRIER BEACHES:

1. Matunuck Barrier, Narragansett Portion (Jerusalem Beach)
2. Point Judith Pond Barrier (Sand Hill Cove Beach)
3. Narragansett Barrier (Narragansett Beach)
4. Bonnet Shores Barrier

Total Length: 2.6 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*Assessment*
1.	Private Undeveloped	12	500 ft.	$ 218,000
2.	Private Conservation	---	---	---
3.	Private Beach	20	4,400 "	899,000
4.	Private Light Development	---	---	---
5.	Private Urban Development	55	3,900 "	3,554,000
6.	Town Conservation	---	---	---
7.	Town Beach	10	2,200 "	exempt
8.	Special District Conservation	4	---	exempt
9.	Special District Beach	---	---	---
10.	State Conservation	139	---	exempt
11.	State Beach	20	2,300 "	exempt

	Acreage	Ocean Shoreline	Assessment
12. State Urban Development	18	1,200 ft.	exempt
13. Federal	0.2	---	exempt
TOTALS	278	14,500 ft.	$4,671,000*

*NOTE: This is approximately 4.6% of the assessed value of all property taxed by the town. It produces an annual tax income of $125,000.

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	37
2. Other, Rhode Island	163
3. Out-of-state	48
TOTAL	248

Municipal Controls: Narragansett zoning ordinances were revised in May of 1972 to qualify the town for the permanent program of the National Flood Insurance Program. Building code restrictions were imposed on all new construction within the hurricane flood plain.

Comprehensive Plan: The Narragansett master plan was adopted in 1968. It calls for acquisition and/or conservation of marsh areas behind the town's barriers, for acquisition of additional recreation areas and for the preservation of remaining open space. The plan proposes that both Jerusalem and Sand Hill Cove remain in their present state but that the Narragansett Town Beach be expanded. Narragansett's community plan is not at present an active force in guiding the development of the town.

General Problems: Town officials feel that the state beaches at Sand Hill Cove and Scarborough impose a heavy burden on town facilities and services. They believe that the state should help the town provide adequate access routes, should help police these routes, and should help relieve traffic congestion by rerouting bathers to other facilities when state beaches in Narragansett are full. It was felt that the state beaches attract out of town users in such numbers that they impose a hardship on the town and its citizens.

Town officials also expressed displeasure at the lack of communication and cooperation with state agencies involved in beach management and recreational development. They feel that they are not consulted when development concerns them and are seldom made aware of state plans and activities. Lack of communication was cited as the single most serious obstacle to good local-state relations.

Matunuck Barrier, Narragansett Portion
(Jerusalem Beach)
Length: 0.4 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Private Undeveloped	1.9	50 ft.	18	$ 132,000
2. Private Urban Development	23.9	1,163 "	82	1,186,950
3. State Conservation	17.0	---	2	exempt
4. State Beach	3.2	900 "	1	exempt
TOTALS	46.0	2,113 ft.	103	$1,318,950

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	4
2.	Other, Rhode Island	90
3.	Out-of-state	30
	TOTAL	124

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	18.3 acres
2.	Secondary Growth	None
3.	Wetland	18.5 acres

HURRICANE DAMAGE:

1.	1938	Unavailable
2.	1954	$3.34 million (Matunuck Point to Point Judith)

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	12.5 ft. above mean sea level
2.	1954	12.0 ft. above mean sea level
3.	Standard Project	16.0 ft. above mean sea level

DUNE CREST ELEVATION:

1.	High dune near breachway	13.9 ft. above mean sea level

Natural Features: The Jerusalem beach is the eastern end of the barrier that includes East Matunuck Beach in South Kingstown. It has no natural dune system on its western end and is only four to five feet

above mean sea level (MSL). The Jerusalem access road is protected from winter storms by a bulldozed sand barrier. A low dune which grows in height and width as it approaches the breachway extends along the eastern end of the barrier. The dunes immediately adjacent to the breachway are several crests wide and rise to 14 feet above MSL. They are hummocky and have numerous unvegetated areas.

Development: The western end of the beach is used as a public bathing beach and is backed by an extensive salt marsh. The village of Jerusalem lies behind the eastern end of the barrier. Heavy residential development is concentrated in and immediately behind the dune field at the eastern end. Most of the homes are summer residences. Other residences and several commercial structures are built on the flat behind the dune and extend onto filled areas of the marsh.

Storm History: Jerusalem was extensively damaged by both the major hurricanes of this century. In 1938 and again in 1954 many structures were destroyed or heavily damaged. Several lives were lost in 1938 and one in 1954. No accurate figures on property damage are available for Jerusalem alone.

The Jerusalem barrier remains highly vulnerable to storm and hurricane damage. The elevation of all but a very small area of the dune is well below major hurricane still water flood levels.

RECOMMENDATIONS:

1. No further building or rebuilding after destruction by a storm should be permitted on or among the dunes.

2. Prospective buyers of property on the barrier should be informed of the barrier's vulnerability to storm damage.
3. Efforts should be made to build and stabilize dunes by planting beachgrass and erecting snow fences. Access across the dunes to the beach should be over boardwalks.
4. Further filling of marsh lands should be prohibited.

Sand Hill Cove Beach
Length: 0.9 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Private Undeveloped	7.6	270 ft.	21	$ 61,350
2. Private Urban Development	27.9	2,435 "	47	2,164,250
3. State Conservation	122.0	--- "	2	exempt
4. State Beach	16.6	1,400 "	2	exempt
5. State Urban Development	18.2	1,150 "	41	exempt
6. Federal	0.2	--- "	1	exempt
TOTALS	192.5	5,255 ft.	114	$2,225,600

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	24
2. Other, Rhode Island	56
3. Out-of-state	11
TOTAL	91

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	7.3 acres
2.	Secondary Growth	51.3 acres
3.	Wetland	103.1 acres

HURRICANE DAMAGE:

1.	1938	Unavailable
2.	1954	$ 3.34 million (Matunuck Point to Point Judith)

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	13 ft. above mean sea level
2.	1954	12 ft. above mean sea level
3.	Standard Project	17 ft. above mean sea level

DUNE CREST ELEVATION

1.	High dunes, west of State Beach	21.0 ft. above mean sea level
2.	East of State Beach	15.0 ft. above mean sea level

Naural Features and Development: The beach is backed by a high (approximately 21 feet above MSL) well vegetated dune from the western end by the breachway to the beginning of the state beach where it ends abruptly. There is moderate to heavy residential development immediately behind this dune. Access from the houses to the beach is down stairways and the dune face is consequently well vegetated and stabilized. A low unvegetated dune separates the state beach from the bathing pavilion and a large paved parking lot. During the winter this dune is

stabilized by snow fencing. There is no parking or entrance fee at the State Beach, but some revenue is generated by concessions and bathhouse fees. Relatively high (15 feet above MSL) dunes continue from the eastern end of the State Beach. They are extremely irregular, hummocky, poorly vegetated and are being further eroded by pedestrians and motorcycles. The beach is protected by a series of groins designed to interrupt the longshore drift of sand. The area to the east of the State Beach is heavily developed in summer cottages.

Storm History: The Galilee area has been hard hit by past hurricanes and damage during both the 1938 and 1954 hurricanes was extensive. The area from Matunuck Point to Sand Hill Cove suffered hurricane damages of $3.34 million in 1954. While the high dune provides substantial protection to development on the western end of the barrier, the State Beach remains highly vulnerable to hurricane damage.

RECOMMENDATIONS:

1. Access from houses behind the dune to the beach should be across boardwalks or wooden stairways.
2. The dunes to the east of the State Beach must be protected from pedestrians and vehicles. Beachgrass should be planted on denuded dunes and snow fences erected to build up eroded sections.
3. Prospective buyers of barrier property should be informed of its vulnerability to storm damage.
3. Since buildings in Galilee and Sand Hill Cove are protected by a high dune and the Harbor of Refuge seawall, and since

development is well established, it is neither desirable nor practical to prohibit construction in this area. However, all future building should conform to flood hazard zoning standards. No filling of marshland or damage to dunes should be permitted.

Narragansett Barrier
Length: 1.0 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Beach	6.9	2,750 ft.	2	$ 509,029
2.	Private Urban Development	1.8	250 "	4	122,371
3.	Town Beach	10.00	2,200 "	5	exempt
	TOTALS	18.7	5,200 ft.	11	$ 631,400

DISTRIBUTION OF OWNERS AND LEESEES:

1.	Town Residents	3
2.	Other, Rhode Island	2
3.	Out-of-state	1
	TOTAL	6

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	2.9 acres
2.	Secondary Growth	2.8 acres
3.	Wetland	0.7 acres

HURRICANE DAMAGE:

1.	1938	Destroyed all structures. $5.829 million (town)
2.	1954	$2.046 million (Beach and Pier)

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	13.5 ft. above mean sea level
2.	1954	12.5 ft. above mean sea level
3.	Standard Project	17.5 ft. above mean sea level

DUNE CREST ELEVATION:

1.	Remnant of dune Town Beach	12.5 ft. above mean sea level
2.	In front of Dune's Club	20.5 ft. above mean sea level
3.	Near mouth of Pettaquamscutt River	11 ft. above mean sea level

Natural Features: The Narragansett town beach stretches along the western portion of this beach. A large parking lot lies behind a cement seawall. There is no dune in front of the seawall. There is, however, a small hummocky dune at the eastern end of the town beach. It is poorly vegetated and severely eroded with a few scattered crests approaching nine feet above MSL. East of the town beach in front and to the west of the privately owned Dunes Club the dunes increase in height and width. They approach 21 feet above MSL before tapering off to approximately 11 feet above MSL at the mouth of the Pettaquamscutt River. These dunes are well vegetated by beachgrass and scattered shrubs. East of the clubhouse the dunes are several ridges deep and

remarkably well preserved. The salt marsh along the river behind the barrier shows no evidence of filling.

Development: Most of Narragansett Beach is developed for recreational use. The town beach occupies the entire western end of the barrier. Large paved parking lots and several pavilions and bathing cabanas lie behind the town beach. There is no charge for parking at the town beach. Residents can purchase season beach passed for $5.00 ($1.00 for children). Nonresidents are charged $1.00/day. Fees are charged for the use of showers, changing rooms and cabana facilities with daily, weekly and season rates available. The beach is often filled to capacity on summer weekends. Many recreators are from out of town and frequently cause severe traffic congestion.

The Dunes Club owns most of the eastern half of the barrier. The Club includes a large clubhouse built into the dune and extensive parking areas, tennis courts and other recreational facilities behind the dune. The club is only open to members and their guests.

Storm History: Narragansett Pier has been devestated by both major hurricanes of the century. The 1938 hurricane leveled nearly all structures in the downtown and beach areas including the town bathhouses and the Dunes Club clubhouse. Damages were estimated at $5.829 million (for the whole town). Damages in 1954 were estimated at $2.046 million for the Pier beach area alone. The barrier remains vulnerable to hurricane damage.

RECOMMENDATIONS:

1. The dunes between the town beach and the Pettaquamscutt River should be protected from erosion and alteration. Pedestrians should be confined to boardwalks across the dunes and vehicles should be prohibited.
2. Traffic congestion could be alleviated by warning and detouring recreators to other facilities when the town beach was filled to capacity. Incoming traffic should be intercepted on Route 1.
3. The area east of the developed section of the Dunes Club should be made into a Conservation Area.

Bonnet Shores Barrier
Length: 0.3 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	2.7	220 ft.	10	$ 24,375
2.	Private Beach	13.3	1,600 "	4	390,350
3.	Private Urban Development	1.2	---	7	80,168
4.	Special District Conservation	4.2	---	3	exempt
	TOTALS	21.4	1,820 ft.	24	$ 494,893

DISTRIBUTION OF OWNERS AND LESSEES

1. Town Residents 6
2. Other, Rhode Island 15

3.	Out-of-state	6
	TOTAL	27

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	3.4 acres
2.	Secondary Growth	None
3.	Wetland	9.2 acres

HURRICANE DAMAGE:

1.	1938	Pavilion destroyed. $730,000
2.	1954	Pavilion destroyed. $516,000

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	13.5 ft. above mean sea level
2.	1954	12.5 ft. above mean sea level
3.	Standard Project	17.0 ft. above mean sea level

DUNE CREST ELEVATION:

1.	West end	7.5 ft. above mean sea level
2.	In front of pavilion	6.5 ft. above mean sea level
3.	East of pavilion	7.5 ft. above mean sea level
4.	East end by breachway	9 ft. above mean sea level

Natural Features and Development: There is no detectable dune along most of the length of this low and narrow barrier. Maximum elevations range between 6.5 and 8 feet above mean sea level. A bathing

pavilion and parking lots have been built near the middle of the barrier. A low (eight feet above MSL), well vegetated dune begins to the east of the pavilion and extends to a seasonally active breachway at the eastern end of the beach. This dune line continues beyond the breachway and follows the contours of the adjacent headland. The dune has an eroded base and an approximate height of nine feet above MSL.

A pond bordered by a marsh, largely freshwater in nature, lies behind the barrier to the north. There is some evidence of marsh filling.

The Bonnet Shores Beach Club owns nearly all of the barrier. Season and daily membership passes are sold to the general public. The beach is frequently crowded on summer weekends.

Storm History: Bonnet Shores has been extensively damaged during past hurricanes. The beach was swept clean and the pavilion destroyed by both the 1938 and 1954 hurricanes. The existing structure does not appear to be designed to survive a major hurricane. The single access road to the beach crosses the middle of the pond and is frequently awash even under normal conditions.

RECOMMENDATIONS:

1. No further development should be permitted on this barrier.
2. The dune on either side of the pavilion should be stabilized and restored by planting beachgrass and erecting snow fences. Vehicles and pedestrians should be prohibited from the dune.
3. Further filling of the marsh should be prohibited.

TOWN OF JAMESTOWN

Mackerel Cove Barrier
Length: 0.2 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	---	--- ft.	---	$ ---
2.	Private Conservation	0.4	---	1	exempt
3.	Private Beach	---	---	---	---
4.	Private Light Development	0.1	---	1	390
5.	Private Urban Development	---	---	---	---
6.	Town Conservation	---	---	---	---
7.	Town Beach	6.9	1,320 "	1	exempt
8.	Special District Conservation	---	---	---	---
9.	Special District Beach	---	---	---	---
10.	State Conservation	---	---	---	---
11.	State Beach	---	---	---	---
12.	State Urban Development	---	---	---	---
13.	Federal	---	---	---	---
	TOTALS	7.4	1,320 ft.	3	$ 390

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	2
2.	Other, Rhode Island	1
3.	Out-of-state	0
	TOTAL	3

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	2.2 acres
2.	Secondary Growth	None
3.	Wetland	15.4 acres

HURRICANE DAMAGE:

1.	1938	Seven deaths
2.	1954	Unavailable

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	13.5 ft. above mean sea level
2.	1954	12.5 ft. above mean sea level
3.	Standard Project	Unavailable

DUNE CREST ELEVATION:

1.	Road level	8 ft. above mean sea level

Municipal Controls: Mackerel Cove is zoned for recreation and open space by the town of Jamestown. Abutting land on either end of the barrier is zoned rural residential, the town's lowest building density (two acre lots).

Comprehensive Community Plan: The town's master plan was completed in 1966 and adopted soon thereafter. It is currently being updated. The plan recommends that Jamestown should remain a residential community. It proposes that the town maintain and enhance its natural recreation and tourist potential by preserving and where appropriate developing new and existing recreational sites and conservation areas. According to the plan Mackerel Cove will remain the town's public beach and the marsh fringing Sheffield Cove will be reserved as a Conservation Area.

Natural Features: The Mackerel Cove barrier serves as a causeway between Beavertail and the remainder of Conanicut Island. A two lane highway elevated approximately eight feet above mean sea level runs along its length. There is no dune or vegetation on the beach side of the road. The Sheffield Cove side is fringed by marsh.

Development: Mackerel Cove is operated as the Jamestown town beach. There are no permanent facilities. A portable concession stand and toilets are moved in during the swimming season. Parking is limited to a graveled area off the shoulder of the causeway road. Season parking passes are issued to town residents at $2.00/family. A $4.00/day parking fee discourages nonresidents. The beach is managed by a small team of lifeguards. Sheffield marsh on the far side of the road is managed as a Conservation Area by the state Audubon Society.

Storm History: The road across Mackerel Cove barrier has been seriously flooded only during the 1938 and 1954 hurricanes. Since the

barrier is not developed, no appreciable property damage has been sustained. The possible isolation of the Beavertail end of the island remains a problem. A school bus attempting to cross the causeway during the 1938 hurricane was swept off the road and seven lives were lost.

RECOMMENDATIONS:

1. All building should be prohibited on the barrier.
2. The barrier should be reserved for public swimming and conservation as proposed in the town's master plan.

CITY OF NEWPORT

BARRIER BEACHES:

1. Lily Pond Barrier (Hazard's Beach)
2. Almy Pond Barrier (Bailey's Beach)
3. Easton Pond Barrier (First Beach)

Total Length: 1.3 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*Assessment*
1.	Private Undeveloped	0.2	--- ft.	$ 2,000
2.	Private Conservation	---	---	---
3.	Private Beach	22	2,300 "	638,000
4.	Private Light Development	2	100 "	17,000
5.	Private Urban Development	---	---	---
6.	Town Conservation	---	---	---
7.	Town Beach	22	3,000 "	exempt
8.	Special District Conservation	---	---	---
9.	Special District Beach	---	---	---
10.	State Conservation	---	---	---
11.	State Beach	---	---	---
12.	State Urban Development	---	---	---
13.	Federal	---	---	---
	TOTALS	46	5,400 ft.	$ 657,000*

*NOTE: This is approximately 0.3% of the assessed value of all property taxed by the town. It produces an annual tax income of about $26,275.

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	8
2.	Other, Rhode Island	0
3.	Out-of-state	1
	TOTAL	9

Municipal Controls: Newport's zoning ordinances were amended in July of 1972. Building code restrictions were imposed on all new construction in the hurricane flood plain in accordance with the National Flood Insurance Program. Hazard's and Bailey's Beaches are zoned for low density residential use. Easton's Beach is in a restricted area surrounding the city reservoir at Easton's Pond where development in addition to the town beach is prohibited. Newport beaches are closed to vehicular traffic throughout the year.

Comprehensive Community Plan: The present city master plan was adopted in 1962. A new plan has been drafted and will be presented at public hearings in the near future. The new plan stresses the need for establishing flexible developmental policies. It recognizes the city's potential as a tourist center, the importance of its beaches and shoreline as tourist attractions and the increasing residential pressure on recreationally valuable shore areas. The new plan recognizes that existing recreational facilities are inefficiently utilized and recommends that they be improved and redeveloped before additional

areas are acquired. Newport has an active Planning Department and appears to be pursuing long range developmental goals.

Lily Pond Barrier
(Hazard's Beach)
Length: 0.3 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	negligible	--- ft.	1	$ 11,500
2.	Private Beach	9.6	1,140 "	2	178,800
3.	Private Light Development	negligible	---	1	70
	TOTALS	9.6	1,140 ft.	4	$ 190,370

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	3
2.	Other, Rhode Island	0
3.	Out-of-state	1
	TOTAL	4

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	2.0 acres
2.	Secondary Growth	1.3 acres
3.	Wetland	None

HURRICANE DAMAGE:

1.	1938	Pavilions destroyed
2.	1954	Heavy damage

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	13 ft. above mean sea level
2.	1954	12 ft. above mean sea level
3.	Standard Project	16.5 ft. above mean sea level

Natural Features: The Lily Pond Barrier lies between two rocky headlands, Cherry Neck to the west and Spouting Rock to the east. There are a number of exposed rocks immediately offshore and a large outcrop extends seaward from the middle of the beach. The dune on the western third of the beach has been replaced by a low concrete seawall. A low dune stretches eastward from the seawall to the rock outcrop. This dune is covered with a moderately dense growth of beachgrass. East of the outcrop the dune progressively increases in height (estimated at 10 to 12 feet above mean sea level-no transit readings were possible). This dune consists of isolated hummocks separated by wide blowouts both across and along the dune line. Its base has been eroded by wave action and the dune face is unprotected by vegetation. The crest is covered in patchy stands of beachgrass and low scrub. Efforts are being made to stabilize eroded footpaths across the dune with snow fencing and discarded Christmas trees. Dune height decreases and the condition of the dunes improves along the eastern third of the beach. Lily Pond is fresh and does not have a natural breachway to the ocean.

Development: Hazard's Beach is in a low density residential area consisting primarily of large estates. The beach is in private ownership; the western half is owned by the Hazard's Beach Club, the eastern half by the Goosebury Beach Club. The beach is surrounded by a high chain link fence and access is restricted to club members and their guests.

The pavilion and clubhouse of the Hazard's Beach Club stands behind a low seawall. East of the buildings is a large parking lot. The Goosebury Beach Club has a bath-clubhouse complex, a concession stand and a large parking lot. Ocean Avenue is on the pond side of the Club parking lots.

Storm History: The dune and the beach facilities appear to be well below severe hurricane flood levels for this area. The beach was heavily damaged in both 1938 and 1954.

RECOMMENDATIONS:

1. The present use and development of this barrier for recreation is acceptable.
2. Residential development should not be permitted.
3. Efforts should be made to restore and vegetate the dunes. Access across the dune to the beach should be restricted to boardwalks.

Almy Pond Barrier
(Bailey's Beach)
Length: 0.3 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Private Beach	12.4	1,140 ft.	6	$ 459,400
2. Private Light Development	1.7	100 "	3	17,100
TOTALS	14.1	1,240 ft.	9	$ 476,500

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	4
2. Other, Rhode Island	0
3. Out-of-state	0
TOTAL	4

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	Negligible
2. Secondary Growth	Negligibile
3. Wetland	5.5 acres

HURRICANE DAMAGE:

1. 1938	Pavilion destroyed
2. 1954	Pavilion heavily damaged

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938	13 ft. above mean sea level

2.	1954	12 ft. above mean sea level
3.	Standard Project	16.5 ft. above mean sea level

Natural Features and Development: A low bramble covered dune extends a short distance from the western end of the barrier to a long row of bathhouses. A short stretch of dune at the eastern end of the barrier is well vegetated with beachgrass. Bailey's Beach is owned by the Spouting Rock Beach Association. A clubhouse and bathing pavilion stretch along much of the beach's length and are separated from the beach by a low concrete seawall. Tennis courts are located to the east of the clubhouse. There are parking lots on either side of Ocean Avenue between the clubhouse and the pond. The club is restricted to members and their guests. A few hundred feet of the eastern end of the beach is open to the public. Access is restricted to a foot path down a steep hill. There is no public parking in the immediate area or public facilities on or near the beach.

Storm History: Club buildings were completely destroyed in 1938 and heavily damaged in 1954.

RECOMMENDATIONS:

1. The present use and development of this barrier for recreation is acceptable.
2. The public right-of-way to the western portion of the beach should be made more accessable. Public sanitary facilities should be provided during the summer.
3. Residential development should not be permitted.

Easton Pond Barrier
(First Beach)
Length: 0.7 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Town Beach	22.3	2,990 ft.	1	exempt
TOTALS	22.3	2,990 ft.	1	exempt

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	1
2. Other, Rhode Island	0
3. Out-of-state	0
TOTAL	1

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	None
2. Secondary Growth	None
3. Wetland	None

HURRICANE DAMAGE:

1. 1938	Bathing facilities and reservoir heavily damaged
2. 1954	$17,000

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938	12.5 ft. above mean sea level

2.	1954	1.5 ft. above mean sea level
3.	Standard Project	16.0 ft. above mean sea level

DUNE CREST ELEVATION:

1.	Pavilion seawall	8.5 ft. above mean sea level

Natural Features and Development: The Easton Pond barrier has been extensively altered by man. With the exception of the beach all natural features have been obliterated. The beach is owned by the City of Newport and operated as the town bathing beach. A four lane highway runs the length of the barrier. A dike has been erected beyond the road to contain the city's water supply in what was once the barrier pond.

The beach is backed by a loose riprapping of large boulders on which a four foot concrete seawall has been built. This seawall protects Memorial Boulevard. The pavilion and bathhouses extend along the central portion of the barrier. They are separated from the beach by a concrete seawall which is approximately 8 1/2 feet above mean sea level. There are large parking lots on either side and behind the pavilion. A very low and sparsely vegetated dune runs in front of the eastern parking lot.

Easton's Beach is heavily used by nonresidents who pay $15/season or $1/day ($2 on weekends) to park their cars. There is no problem with nonresident congestion. City residents pay $7 for a season pass. Additional revenues are provided by bathhouse rentals ($25/season), reserved parking fees ($25/season) and concessions. The beach is filled to capacity on many summer weekends. Accumulations of red algae on the

beach have, however, reduced attendance during the last few seasons. As a result the beach is underused and operates at a loss.

The algae problem has interfered substantially with the city's attempts to develop the full recreational potential of Easton Beach. It is felt that the beach could meet future city and regional needs if it can be made attractive to bathers. The city is considering opening the parking lots to overnight camper parking.

Storm History: Easton's Beach was almost completely destroyed by the 1938 hurricane. A large salt water swimming pool and amusement park were both damaged beyond repair. The dike along the front of Easton's Pond was overtopped and breached in several places by storm waters and the city water supply was contaminated. In 1954 the pavilion and the reservoir were again damaged. Normal storm activity does not cause flooding or wave damage to existing facilities. The area, however, remains vulnerable to major hurricanes.

RECOMMENDATIONS:

1. The present use and development of this barrier is acceptable.

TOWN OF MIDDLETOWN

BARRIER BEACHES:

1. Nelson and Gardiner Pond Barriers

   Total Length: 1.2 miles

LAND USE AND OWNERSHIP:

		Acreage	*Ocean Shoreline*	*Assessment*
1.	Private Undeveloped	1	--- ft.	$ 2,000
2.	Private Conservation	7	---	exempt
3.	Private Beach	10	600 "	31,000
4.	Private Light Development	---	---	---
5.	Private Urban Development	---	---	---
6.	Town Conservation	---	---	---
7.	Town Beach	14	4,700 "	exempt
8.	Special District Conservation	15	---	7,000
9.	Special District Beach	---	---	---
10.	State Conservation	---	---	---
11.	State Beach	---	---	---
12.	State Urban Development	---	---	---
13.	Federal	69	4,200 "	exempt
	TOTALS	116	9,500 ft.	$ 39,000*

NOTE: This is approximately 0.1% of the assessed value of all property taxed by the town. It produces an annual tax income of $1,770.

DISTRIBUTION OF OWNERS AND LEESSEES:

1.	Town Residents	3
2.	Other, Rhode Island	3
3.	Out-of-state	1
	TOTAL	7

Municipal Controls: Middletown is in the permanent program of the National Flood Insurance Program and restricts construction within the flood plain. Middletown's barrier beaches and the wetlands and ponds behind them are zoned as open space where only recreational development is permitted. Vehicles are prohibited from the beaches by town ordinance.

Comprehensive Community Plan: The existing town master plan dates from 1964. A new plan is being developed by a Boston firm (Community Planning, Incorporated and will soon be completed. No change in the classification of the barrier beaches and adjacent areas from recreational open space is proposed.

General Problems: The town beach at Sachuest is heavily used by both town and out of town recreators. The present facilities have been damaged by storms and plans for a new building are being completed. Town officials would like to see land at Third Beach now owned by the Department of the Interior developed as a state recreational area. The Town Administrator expressed some displeasure at the location of a Navy officer's beach and recreational facility on Department of Interior land, feeling that as public land its use should not be appropriated by the military. There do not appear to be any disagreements between the state and the town on the present development or administration of beach areas.

Nelson and Gardiner Pond Barriers
(Second and Third Beaches)
Length: 1.2 *miles*

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	1.4	--- ft.	1	$ 1,700
2.	Private Conservation	6.5	---	2	exempt
3.	Private Beach	9.7	580 "	2	30,700
4.	Town Beach	14.4	4,700 "	3	exempt
5.	Special District Conservation	14.6	---	5	6,700
6.	Federal	68.5	4,235	2	exempt
	TOTALS	115.1	9,515 ft.	15	$ 39,100

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	3
2.	Other, Rhode Island	3
3.	Out-of-state	1
	TOTAL	7

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	11.9 acres
2.	Secondary Growth	16.9 acres
3.	Wetland	54.8 acres
4.	Agricultural Land	6.1 acres

HURRICANE DAMAGE:

1.	1938	Bathing facilities destroyed, reservoir damaged
2.	1954	$121,000

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	12.5 ft. above mean sea level
2.	1954	11.5 ft. above mean sea level
3.	Standard Project	16.0 ft. above mean sea level

DUNE CREST ELEVATION:

1.	West end Second Beach	14.5 ft. above mean sea level
2.	Middle Second Beach	12.5 ft. above mean sea level
3.	East and Second Beach	11.5 ft. above mean sea level
4.	Third Beach	10 ft. above mean sea level

THIRD BEACH

Natural Features and Development: This barrier lies between Easton Point to the west and Sachuest Point to the east. The two ponds have been diked and serve as reservoirs for the City of Newport. The beach is wide and composed principally of sand. Well developed dunes extend the length of the barrier. Between the dunes and the ponds is a freshwater wetland some of which has been filled to build Sachuest Point Road and to provide parking for the Middletown Town Beach. The dunes along the western two thirds of the barrier are badly eroded. They are crisscrossed by numerous footpaths many of which have developed into severe blowouts. Many areas are unvegetated and the dunes and beach are littered with the remains of picnics and cookouts. The dune

in front of the town beach has been completely devegetated and is much lower than the dunes on either side.

A dune restoration project at the town beach has been funded with a grant of $6,000 from the Ford Foundation. An additional $1,000 and labor has been provided by the town. The project is administered by the town Conservation Commission. Work began in September of 1972 with the installation of snow fences. Access is now confined to defined paths across the dune to the beach.

Second Beach is owned and administered by the Town of Middletown. The town beach has a capacity of 20,000 bathers and is filled on three or four weekends a season. An estimated 80% of users are nonresidents who pay $1.00/car/day for parking on weekdays and $2.00 on weekends. Season parking passes are available for $25. Town residents do not pay for parking. Additional revenues are generated by the rental of 100 bathhouses at $50/season. The beach is staffed by 12 lifeguards, a manager and 14 beach boys and parking attendants.

The existing facilities at the town beach are antiquated and plans for building new ones are nearing completion. Fourty thousand dollars in matching funds have been made available by the State Green Acres Aquisition Program, but construction can begin only if a further $100,000 is granted by the Bureau of Outdoor Recreation.

Storm History: Buildings at the town beach were completely destroyed by the 1938 hurricane and heavily damaged in 1954. The reservoirs behind the barrier were damaged and contaminated by salt water in 1938. Property damage for the entire town in 1938 was $793,000. The beach facilities alone sustained $121,000 in damages in 1954.

RECOMMENDATIONS:

1. The development and use of this barrier for recreation and conservation is acceptable.
2. Eroded dunes should be restored and stabilized along the length of the barrier. Access to the beach across the dunes should be limited to walkways. People should be prohibited from the dunes.
3. Damage to dunes west of the town beach could be decreased by prohibiting parking along Sachuest Point Road.

THIRD BEACH

Natural Features: Third Beach is on the Sakonnet River and is protected from severe wave action by Sachuest Point. The beach is backed by a single well vegetated dune with a crest approximately 10 feet above MSL. The base of the dune has been eroded by wave action and in several places the dune has been cut back to provide building sites for small summer cottages. The dune gradually decreases in height to the southeast where a boat launching ramp and overnight camping and picnicking facility are maintained by the town of Middletown. Freshwater wetland behind the dune has been filled for roads and parking lots.

Development: The beach and back beach areas to the north of the town launching area were owned by the Audubon Society until title was recently transferred to the Department of the Interior. It has condemned the beach cottages and served eviction notices on their owners. Their removal would do much to improve the appearance of the area.

The beach to the east of the federal property is owned by St.

George's School and is leased to the town. The lease comes up for a five year renewal in June of this year. The property includes a small boat launching ramp, a large graveled parking area, picnic tables and sanitary facilities. It is managed by the town harbor master. Parking is free for town residents and $1.00/vehicle/weekday ($2.00 weekends) for non-residents. Fees do not meet operating costs, but according to the town administrator the facility is not a serious drain on the town's recreation budget. The town would like to improve the ramp and update some of the other facilities, but has no immediate plans to do so. Parking is adequate.

Storm History: Third Beach was extensively damaged by both the 1938 and 1954 hurricanes. In 1954 twenty buildings were destroyed at a loss of $205,000. Both the dunes and the wetlands behind them are well below hurricane flood levels.

RECOMMENDATIONS:

1. The use of this barrier for recreation and conservation is acceptable.
2. The summer cottages along the beach should be removed and eroded dune areas restored and stabilized.
3. People should be prohibited from the dunes.

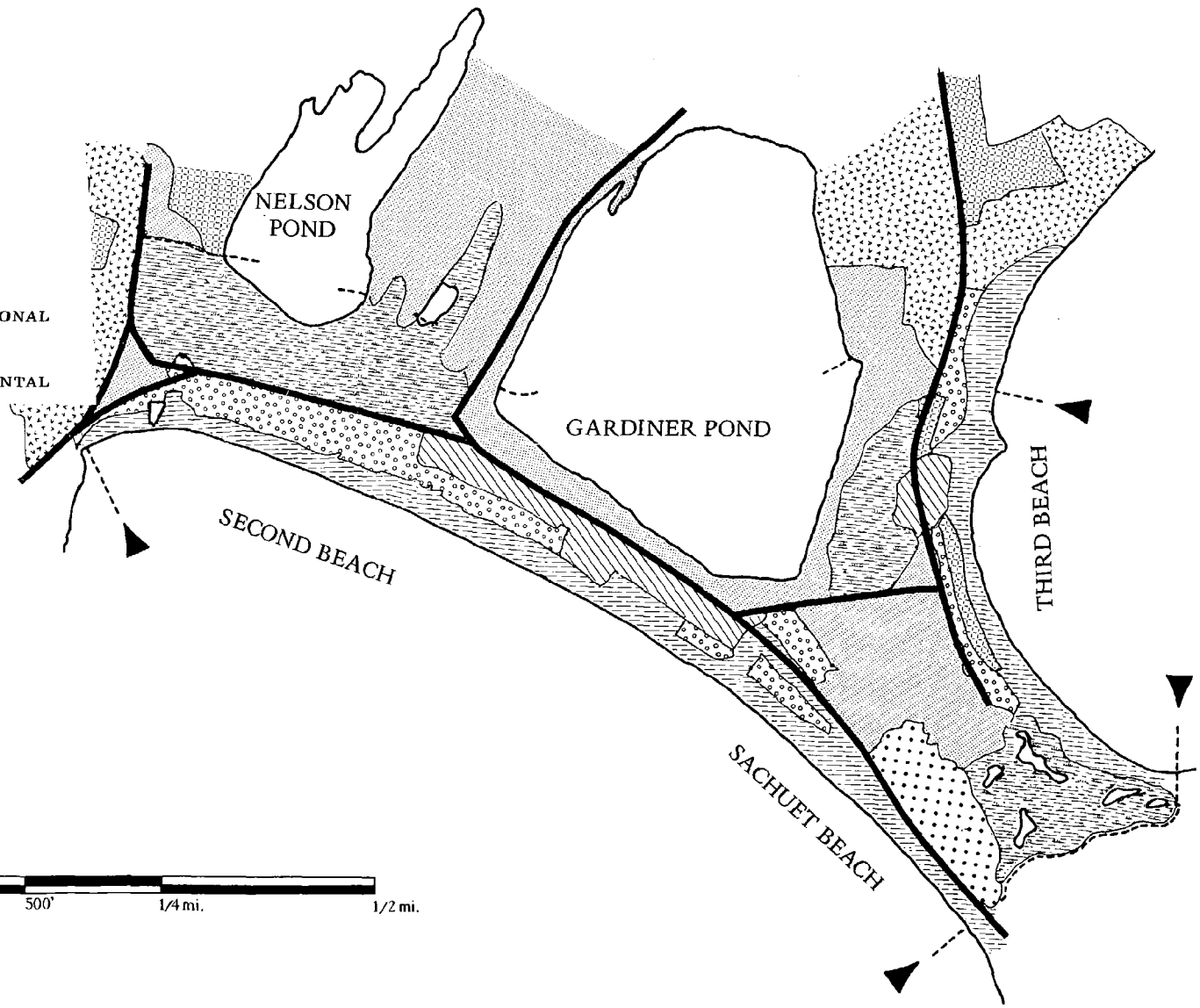
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

NELSON AND GARDINER BARRIERS

- UNVEGETATED SAND OR COBBLE
- BEACH GRASS
- SECOND GROWTH
- MARSH
- AGRICULTURAL
- RESIDENTIAL
- COMMERCIAL AND RECREATIONAL
- INDUSTRIAL AND GOVERNMENTAL



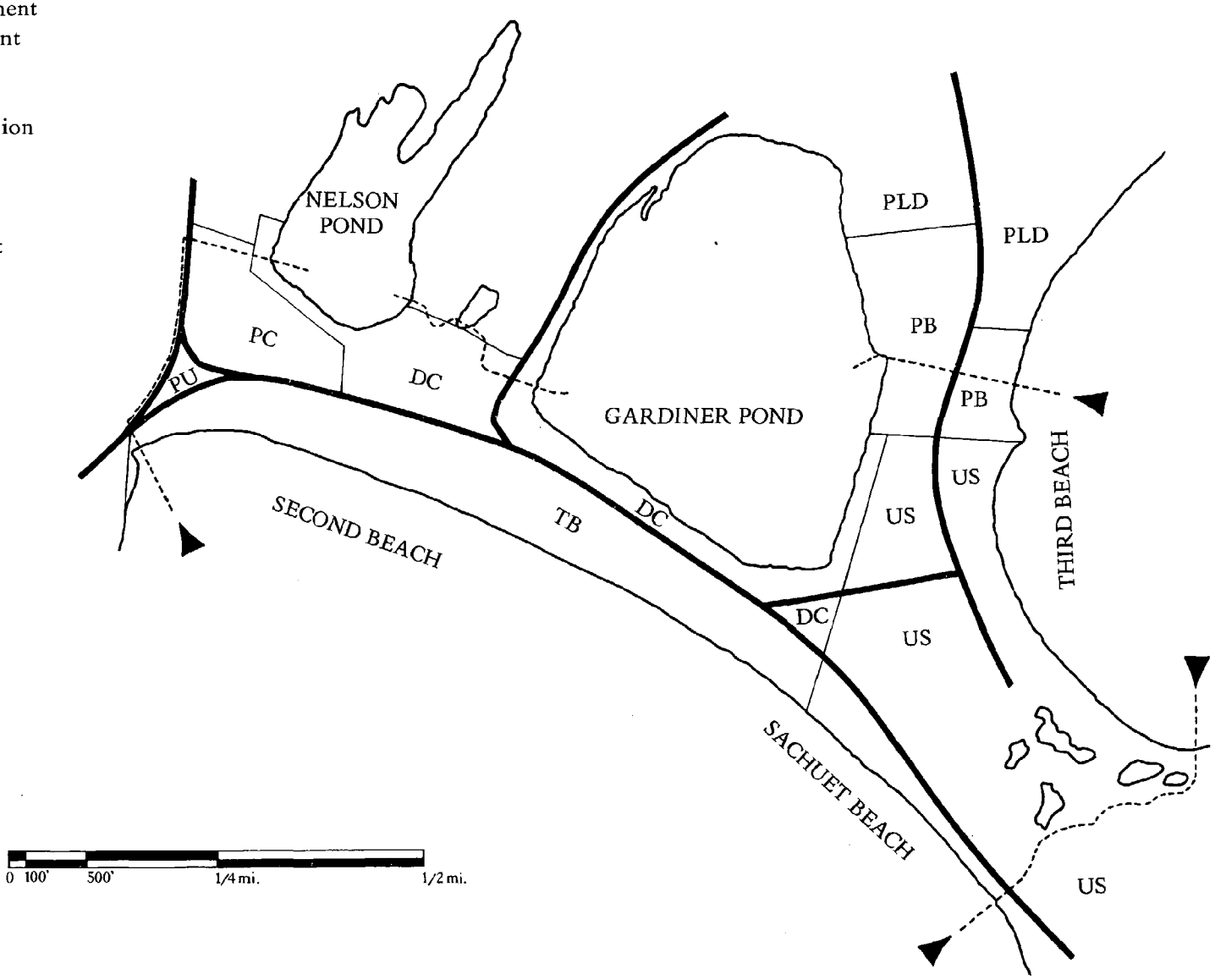
RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

N

NELSON AND GARDINER BARRIERS

PU	Private Undeveloped
PC	Private Conservation
PB	Private Beach (commercial or club)
PLD	Private Limited Development
PUD	Private Urban Development
TC	Town Conservation
TB	Town Beach
DC	Special District Conservation
DB	Special District Beach
SC	State Conservation
SB	State Beach
SUD	State Urban Development
US	Federal



TOWN OF LITTLE COMPTON

BARRIER BEACHES:

1. Sakonnet to Warren Point Barriers (Watchhouse, Long and Tappen's beaches)
2. Briggs Marsh Barrier (Briggs Beach)
3. Ship Pond Cove Barrier (Ship Pond Cove)
4. South Shore Barriers (Round Meadow, Tunipus, Quicksand Beaches)

Total Length: 2.4 miles

LAND USE

	Acreage	*Ocean Shoreline*	*Assessment*
1. Private Undeveloped	45	5,200 ft.	unavailable
2. Private Conservation	---	---	---
3. Private Beach	61	3,900 "	unavailable
4. Private Light Development	14	1,700 "	unavailable
5. Private Urban Development	---	---	---
6. Town Conservation	---	---	---
7. Town Beach	4	1,300 "	exempt
8. Special District Conservation	---	---	---
9. Special District Beach	---	---	---
10. State Conservation	---	---	---
11. State Beach	---	---	---

	Acreage	Ocean Shoreline	Assessment
12. State Urban Development	---	---	---
13. Federal	---	---	---
TOTALS	124*	12,100 ft.*	*

*NOTE: Because Little Compton does not have plat maps it was necessary to estimate data after consultation with the town tax assessor. Barrier property is taxed at a very low rate.

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	7
2. Other, Rhode Island	0
3. Out-of-state	4
TOTAL	11

Municipal Controls: Little Compton has recently adopted a town zoning ordinance. With the exception of subdivisions on some headlands, the shoreline is zoned for two acre residential lots. There are no special restrictions on shorefront building and the town does not participate in the National Flood Insurance Program.

Comprehensive Community Plan: The Soil Conservation Service of the Department of Agriculture is completing a land use survey which is being used by a professional planner (Dr. Elliot, Harvard University) to propose a master plan for the town's future development. The project is financed by a Ford Foundation grant. Preliminary recommendations are

expected in the spring.

General Problems: Most of Little Compton's ocean shoreline lies within several large estates. Through the Little Compton Preservation Society many of these properties are administered as private Conservation Areas from which the public is prohibited. Public access to the ocean shoreline is severely restricted and some town officials feel that this may be contrary to state and local public needs. Town officials are concerned that the state may acquire property for recreational development and public access without fully considering the town's interests.

In great contrast to other towns with an ocean shoreline Little Compton survives as a rural area. Residents are jealous of their privacy and want to preserve the quiet beauty of their countryside. They fear being overrun by nonresidents if more public recreational facilities are provided.

The town has no plans for acquiring more shoreline and it does not participate in the Green Acres Program. Town officials feel that the unusually high water table along much of the town's coastline will prevent further development.

Sakonnet to Warren Point Barriers
(Watchhouse, Long and Round Pond Barriers)
Length: 0.4 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Private Beach	2.4	400 ft.	1	unavailable
2. Private Light Development	14.4	1,680 "	3	unavailable
TOTALS	16.8	2,080 ft.	4	unavailable

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	2
2. Other, Rhode Island	0
3. Out-of-state	2
TOTAL	4

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	4.1 acres
2. Secondary Growth	1.5 acres
3. Wetland	0.5 acres

HURRICANE DAMAGE:

1. 1938	$273,000 (entire town)
2. 1954	$ 30,000 (entire ocean shoreline)

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938	12 ft. above mean sea level

2. 1954 11 ft. above mean sea level

3. Standard Project 15.5 ft. above mean sea level

DUNE CREST ELEVATION:

1. Round Pond 9 ft. above mean sea level

2. Long Pond (Tappen's) 13 ft. above mean sea level

Natural Features and Development: Watch House Pond lies within a large estate and is surrounded by pastureland. The pond is very small and the barrier beach is composed largely of cobbles. To the east a private road leads to Round and Long Ponds. Round Pond has a sand and cobble beach which rises to a crest nine feet above mean sea level (MSL). There is no dune. A narrow strip of beachgrass and shrubs lies between the beach and the pond which is fringed by marsh. There are no structures on or near the barrier and there is no evidence that it is used for bathing.

The Long Pond barrier, has a sand and cobble beach. Along the western half of the barrier are well developed dunes with crests approaching 13 ft. above MSL. In October, when the field survey was made, water was flowing from the pond across a wide washover near the eastern end. A four to five foot scarp had been cut through well vegetated dunes on either side of the washover. The pond is fringed by freshwater marsh. There are no structures on the barrier. The eastern end beyond the washover is developed as a private bathing club, the Warren's Point Beach Club, which has a large bathhouse and parking lot on the headland. Club membership fees are $125/family/season.

Storm History: All of Little Compton's ocean front beaches were severely damaged during the 1938 and 1954 hurricanes and there were major changes in the shape and composition of several. Since the Little Compton shoreline is not heavily developed property damages were low. Damages for the entire town (including frontage on the Sakonnet River) were nearly $273,000 in 1938. The ocean shoreline alone sustained $30,000 in damages in 1954.

RECOMMENDATIONS:

Watchhouse Pond

1. The continued management of this beach as a private Conservation Area is desirable.

Round Pond

1. Development of this barrier for recreational or other uses is not desirable.
2. Public access need not be provided as the recreational attractiveness of this barrier is limited.

Long Pond (Tappen's Beach)

1. Development of this barrier should be prohibited.
2. The barrier should be a Conservation Area with provisions for limited public access provided as needs arise.
3. Public use should be limited to light recreation.
4. Efforts should be made to rebuild and stabilize the barrier dunes. All access to the beach across the dunes should be restricted to stabilized walkways.

Briggs Marsh Barrier
(Briggs Beach)
Length: 0.8 miles

LAND USE:

		Acreage	Ocean Shoreline	No. of Lots	Assessment
1.	Private Undeveloped	40.8	4,245 ft.	1	unavailable
2.	Private Beach	0.2	75 ft.	1	unavailable
	TOTALS	41.0	4,320 ft.	2	unavailable

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	2
2.	Other, Rhode Island	0
3.	Out-of-state	0
	TOTAL	2

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	10.3 acres
2.	Secondary Growth	1.9 acres
3.	Wetland	8.0 acres

HURRICANE DAMAGE:

1.	1938	Unavailable
2.	1954	Unavailable

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	12 ft. above mean sea level

2.	1954	11 ft. above mean sea level
3.	Standard Project	15 ft. above mean sea level

DUNE CREST ELEVATION:

1.	West end	9 ft. above mean sea level
2.	Middle	6 ft. above mean sea level
3.	East end	8 ft. above mean sea level

Natural Features and Development: This is one of the larger barriers in Little Compton. The barrier and the land at either end is privately owned and administered as a private conservation and hunting reserve from which the public is prohibited. There is a private beach club, the Briggs Beach Club, on the headland at the eastern end of the barrier. One of the Club's parking lots extends a short distance onto the barrier. The Club owns several large buildings and 30 to 40 day cottages on the headland. Club membership fees are $60/family/season. The barrier is low (six to nine ft. above MSL) and there are no structures on it. The beach is primarily pebble but there are isolated patches of sand at the western end. A well developed dune was destroyed by a storm several years ago. There is a small natural breachway about one third the way down the barrier from the eastern end. The pond side of the barrier is vegetated with beachgrass and scattered shrubs.

RECOMMENDATIONS:

1. Development of this barrier should be prohibited.
2. The future of this barrier as a Conservation Area should be assured.

3. While the present lack of public access is acceptable it may become desirable to open the beach to limited public access in the future.
4. The town or the state should negotiate a conservation easement with the present owner(s) which provides for eventual public access on mutually agreeable terms.
5. Public use should be limited to light recreation.
6. Efforts should be made to rebuild and stabilize the barrier dune. All access to the beach across the dunes should be restricted to stabilized walkways.

Ship Pond Cove
Length: 0.1 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Private Undeveloped	2.2	450 ft.	2	unavailable
TOTAL	2.2	450 ft.	2	unavailable

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	1
2. Other, Rhode Island	0
3. Out-of-state	1
TOTAL	2

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	None
2.	Secondary Growth	15.2 acres (behind pond)
3.	Wetland	None

HURRICANE DAMAGE:

1.	1938	Unavailable
2.	1954	Unavailable

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	12 ft. above mean sea level
2.	1954	11 ft. above mean sea level
3.	Standard Project	15 ft. above mean sea level

DUNE CREST ELEVATION:

1.	High point on berm	7.5 ft. above mean sea level

Natural Features and Development: This small and low barrier rises to 7.5 ft. above MSL. It is vegetated with scattered clumps of grasses and shrubs and is cut by an active breachway at the western end. There are no buildings on or near the barrier. The barrier and surrounding land is privately owned and there is no public access.

RECOMMENDATIONS:

1. Development of this barrier should be prohibited.

South Shore Barriers
(Round Meadow, Tunipus, Quicksand Beaches)
Length: 1.1 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessment*
1.	Private Undeveloped	1.8	520 ft.	1	unavailable
2.	Private Beach	58.2	3,450 "	1	unavailable
3.	Town Beach	3.5	1,250 "	1	exempt
	TOTALS	63.5	5,220 ft.	3	unavailable

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	2
2.	Other, Rhode Island	0
3.	Out-of-state	1
	TOTAL	3

PRINCIPLE VEGETATION TYPES:

1.	Beachgrass	17 acres
2.	Secondary Growth	None
3.	Wetland	17.5 acres

HURRICANE DAMAGE:

1.	1938	Unavailable
2.	1954	Unavailable

HURRICANE FLOOD LEVELS (STILLWATER):

1.	1938	12 ft. above mean sea level

2.	1954	11 ft. above mean sea level
3.	Standard Project	15 ft. above mean sea level

DUNE CREST ELEVATION:

1.	Round Meadow Beach	8 ft. above mean sea level
2.	East end Tunipus Beach	6 ft. above mean sea level
3.	West end Quicksand Beach	8 ft. above mean sea level
4.	Middle Quicksand Beach	10.5 ft. above mean sea level

ROUND MEADOW BEACH

Natural Features and Development: This small barrier lies to the west of a small development of cottages and trailer homes. There are no structures on it. The cobble beach is steep and sparsely vegetated by grasses and shrubs on the pond side. The pond is fringed with marsh and has no breachway.

RECOMMENDATIONS:

1. Development of this barrier should be prohibited.

TUNIPUS POND BARRIER

Natural Features and Development: This barrier is owned by the town and administered as a public bathing beach. A cobble beach rises steeply to a parking lot that runs the length and width of the barrier. The parking lot is approximately six ft. above MSL and is periodically overtopped by storm waves. A shallow breachway separates the eastern end of the barrier from Stony Point.

Few residents use the town beach, preferring the nearby private beaches with their better facilities and sandy beaches. Parking is free to residents and is $1.00/weekday ($2.00 on weekends) for non-residents. The beach is filled to capacity on many summer weekends and it is not uncommon for people to be turned away. During the summer the beach is staffed by three or four lifeguards and parking attendants. There are no concession stands or drinking fountains and sanitary facilities are inadequate.

RECOMMENDATIONS:

1. Continued use of this beach for public bathing is desirable.
2. No permanent structures should be built on the barrier.
3. Improved sanitary facilities and a freshwater supply should be provided.

QUICKSAND POND BARRIER

Natural Features and Development: This barrier extends eastward from Stony Point. At the western end the beach is sandy but the pebble content increases to the east. A low well vegetated dune increases in height to the west. It is cut by many washovers. Isolated dunes reaching elevations of 10.5 ft. above MSL rise on either side of an active breachway about half way down the barrier. The pond is fringed by marsh.

The land on either side of the barrier is privately owned. Ownership of the barrier is disputed between the town and the owner of the Stony Point headland. There is a privately managed public beach on this headland.

Storm History: All three South Shore barriers are low and exposed to severe storm damage.

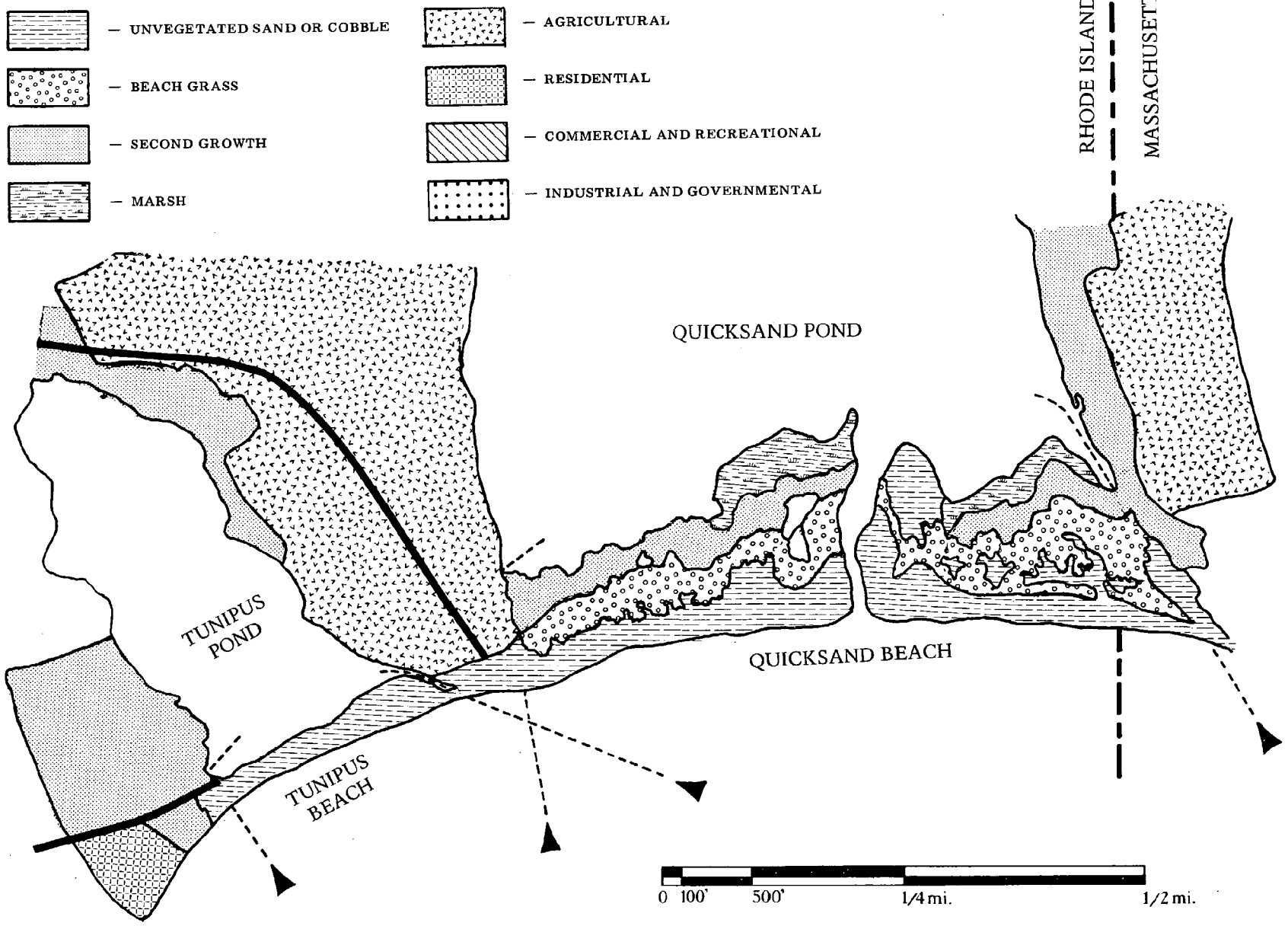
RECOMMENDATIONS:

1. Development of this barrier should be prohibited.
2. The future of this barrier as a Conservation Area should be assured.
3. The existing public right-of-way should be improved to make public access easier. Additional access points may be needed in the future.
4. Efforts should be made to rebuild and stabilize the barrier dune. All access to the beach across the dunes should be restricted to stabilized walkways.
5. Public use should be limited to light recreation.

RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

TUNIPUS AND QUICKSAND BARRIERS

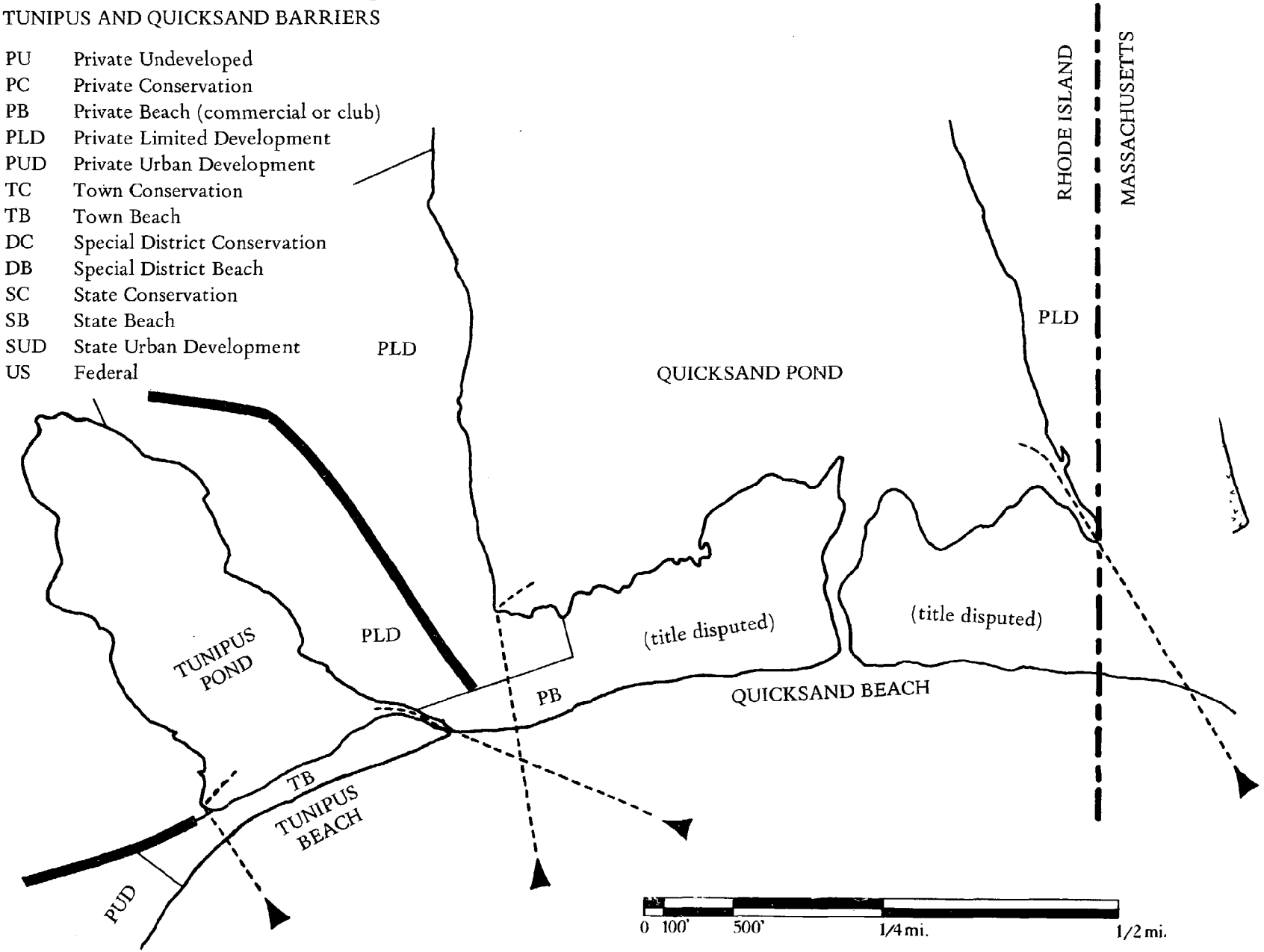


RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

TUNIPUS AND QUICKSAND BARRIERS

PU	Private Undeveloped
PC	Private Conservation
PB	Private Beach (commercial or club)
PLD	Private Limited Development
PUD	Private Urban Development
TC	Town Conservation
TB	Town Beach
DC	Special District Conservation
DB	Special District Beach
SC	State Conservation
SB	State Beach
SUD	State Urban Development
US	Federal



TOWN OF NEW SHOREHAM

BARRIER BEACHES:

1. Crescent Beach Barrier
2. Sandy Point, West, Coast Guard Beach Barriers

Total Length: 5.3 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*Assessment*
1.	Private Undeveloped	31	600 ft.	$ 16,000
2.	Private Conservation	---	---	---
3.	Private Beach	---	---	---
4.	Private Light Development	74	3,200 "	148,000
5.	Private Urban Development	---	---	---
6.	Town Conservation	170	12,300 "	exempt
7.	Town Beach	35	5,600 "	exempt
8.	Special District Conservation	---	---	---
9.	Special District Beach	---	---	---
10.	State Conservation	---	---	---
11.	State Beach	25	2,500 "	exempt
12.	State Urban Development	---	---	---
13.	Federal	40	3,500 "	exempt
	TOTALS	375	27,700 ft.	$ 164,000*

*NOTE: This assessment is approximately 2.2% of the assessed value of all property taxed by the town. It produces an annual tax income of $4,600.

DISTRIBUTION OF OWNERS AND LESSEES:

1.	Town Residents	8
2.	Other, Rhode Island	5
3.	Out-of-state	15
4.	Unknown	3
	TOTAL	31

Municipal Controls: The town of New Shoreham has zoned its low lying shoreline, including all its barrier beaches, as beach preservation areas. These are closed to development and reserved for conservation and recreational use. While some nonconforming uses exist, most of the barrier shoreline is in its natural state. A large amount of barrier property is owned outright by the town. Vehicles are prohibited from the dunes.

Comprehensive Community Plan: New Shoreham is one of the few Rhode Island coastal communities which is vigorously pursuing the objectives outlined in its master plan. The plan was approved in 1971 and is currently being revised. The key to the New Shoreham plan is the recognition of the island's economic dependence on tourists who are attracted by its natural beauty. The preservation of natural beauty is consequently stressed. The plan calls for acquisition and preservation

of unique natural areas, of low lying beach areas subject to flooding and storm erosion and of fragile natural features such as coastal dunes. The aesthetic and ecological dangers of permitting construction in flood plains and the value of the dunes as storm buffers are both recognized. The plan recommends that all low lying beach areas be closed to residential and commercial development and that many be closed to recreational development as well. Most of these objectives have been or are being realized. The town has acquired much of a strip of shoreline from Sachem Pond to the Great Salt Pond Breachway. This land is a Conservation Area.

General Problems: While the New Shoreham economy is dependent on tourist dollars, tourism creates or intensifies many of the island's most pressing problems. Block Island hosts upwards of 150,000 visitors each summer. Hotels and public bathing beaches are filled to capacity on many good summer weekends. The strain on town services and on the island's fragile natural features is severe. Town officials believe that they will have to cooperate with state authorities to control and perhaps restrict the flow of tourists from the mainland during the summer. They do not believe that they can maintain attractive conditions on their own and feel that the state has been less than enthusiastic in assisting them.

The Town Council President stated that even with a 1972 ordinance prohibiting vehicular use of the dunes the town was having great difficulty maintaining healthy dunes along the exposed and heavily used Crescent Beach barrier. Bathers attracted to the state beach on this barrier have eroded numerous footpaths across the dune. Erosion and

blowouts are common and endanger the only access road to the northern end of the island. Town officials have requested state aid in restricting people to established routes across the dune and in protecting these routes from erosion. They need technical advice, stabilizing materials and financial aid.

Crescent Beach Barrier
Length: 1.0 miles

LAND USE:

	Acreage	Ocean Shoreline	No. of Lots	Assessment
1. Private Undeveloped	14.5	--- ft.	6	$ 12,320
2. Private Light Development	19.4	---	9	61,800
3. Town Beach	28.2	2,840 "	2	exempt
4. State Beach	25.0	2,500 "	1	exempt
TOTALS	87.1	5,340 ft.	18	$ 74,120

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	6
2. Other, Rhode Island	4
3. Out-of-state	5
4. Unknown	1
TOTAL	16

PRINCIPLE VEGETATION TYPES:

1. Beachgrass 16.8 acres

2. Secondary Growth 63.6 acres

3. Wetland 9.2 acres

HURRICANE DAMAGE:

1. 1938 $25,000 (entire island)

2. 1954 $18,000 (entire island)

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938 9 ft. above mean sea level

2. 1954 8.5 ft. above mean sea level

3. Standard Project Unknown

DUNE CREST ELEVATION:

1. High dune on south end 11 ft. above mean sea level

2. Exposed length of road 7.5 ft. above mean sea level

3. High dune on north end 16 ft. above mean sea level

Natural Features and Development: This barrier stretches along the western side of the island between the town and the high bluff of Corn Neck. Near the town the barrier is very narrow and Corn Neck Road is protected from wave erosion by stone riprapping. This exposed stretch of road is only 7.5 ft. above mean sea level (MSL). To the north the barrier widens and dunes increase in height from 11 ft. above MSL to nearly 16 ft. near the state beach pavilion. The lower dunes at the southern end are cut by numerous paths and blowouts. The dunes are well vegetated with beachgrass on the pond side but the seaward sides of some

are unvegetated and have been undercut by waves.

Corn Neck Road runs between the dunes and the marshes of Great Salt Pond. A few houses have been built on fill in the marsh. The state beach, with its pavilion and large parking lot, is near the northern end of the barrier. The beach is heavily used during the summer.

Storm History: According to flood danger maps in the town master plan the middle section of Crescent Beach is subject to periodic storm flooding. The entire barrier from Old Harbor to Corn Neck is in the hurricane flood plain.

RECOMMENDATIONS:

1. People should be prohibited from the dunes. Access to the beach across the dunes should be restricted to stabilized walkways.
2. The town and state should cooperate in protecting the dunes and restoring eroded areas.

Sachem Pond Barrier
(Sandy Point, West and Coast Guard Beach)
Length: 4.3 miles

LAND USE:

		Acreage	*Ocean Shoreline*	*No. of Lots*	*Assessments*
1.	Private Undeveloped	16.2	575 ft.	6	$ 3,210
2.	Private Light Development	54.3	3,150 "	7	86,440
3.	Town Conservation	169.7	12,300 "	2	exempt

	Acreage	Ocean Shoreline	No. of Lots	Assessment
4. Town Beach	6.3	2,750 ft.	1	exempt
5. Federal	39.5	3,500 "	3	exempt
TOTALS	286.0	22,275 ft.	19	$ 89,650

DISTRIBUTION OF OWNERS AND LESSEES:

1. Town Residents	2
2. Other, Rhode Island	1
3. Out-of-state	10
4. Unidentified owners	2
TOTAL	15

PRINCIPLE VEGETATION TYPES:

1. Beachgrass	91.7 acres
2. Secondary Growth	57.1 acres
3. Wetland	27.0 acres

HURRICANE DAMAGE:

1. 1938	$25,000 (entire island)
2. 1954	$18,000 (entire island)

HURRICANE FLOOD LEVELS (STILLWATER):

1. 1938	9 ft. above mean sea level
2. 1954	8.5 ft. above mean sea level
3. Standard Project	Unknown

DUNE CREST ELEVATION:

1.	Parking area - Sandy Point	7.5 ft. above mean sea level
2.	High dune - Sandy Point dune field	50 ft. above mean sea level
3.	North end West Beach	13 ft. above mean sea level
4.	Foredune - Coast Guard Beach	10 ft. above mean sea level
5.	Back dune - Coast Guard Beach	15.5 ft. above mean sea level

SACHEM POND AND SANDY POINT BARRIERS:

Natural Features: Sandy Point is a barrier spit that extends into Block Island Sound from the north end of the island. The beach of Sachem Pond barrier on the east side of the Point has no dune and rises only seven feet above MSL. It is stabilized along much of its length by riprapping. The pond is fringed with freshwater wetland and has no breachway.

Rhode Island's most extensive dune field is west of Sachem Pond at the southern end of Sandy Point. It contains thirty acres of dunes some of which rise to fifty feet above MSL. Vegetation is primarily beachgrass and shrubs. Large areas are unvegetated and wind erosion of many dunes is severe. This dune field is one of the most beautiful and unspoiled natural areas in the state.

Development: Sandy Point and Sachem Pond barriers are owned by the town and federal government and administered as a Wildlife Conservation Area. Corn Neck Road ends in a small parking lot between the pond and the ocean. Near the parking lot are a few picnic tables and a sign

indicating the area's status as a Conservation Area. An off road vehicle trail continues from the parking lot towards the point. There are a few footpaths among the dunes. Signs of human misuse are refreshingly few due to the area's isolation and the use restrictions imposed by the town.

Storm History: Except for the North Light lighthouse, there are no buildings in this area subject to storm damage. The road and picnic area are exposed but do not represent a major private or municipal investment. The dune field is removed far enough from the beach to escape serious wave erosion.

WEST BEACH BARRIER

Natural Features and Development: The beach of this barrier is a mixture of sand and cobble. It is backed along most of its length by a low irregular dune. The dune is well vegetated by beachgrass and eroded along much of its base. Blowouts are frequent. The two ponds behind the middle section of the beach are fringed by marsh. Additional marsh lies along the northern edge of the Great Salt Pond.

The entire length of this beach is zoned as a beach conservation district. Much of it is owned by the town and additional areas are controlled by the Block Island Conservency. The town dump is behind the beach off West Shore Road. There are several homes on high ground near the breachway.

Storm History: The town master plan shows that this strip of coastline is subject to hurricane flooding. No structures, however,

are exposed to storm damage.

COAST GUARD BEACH BARRIER

Natural Features and Development: The beach of this barrier is a mixture of sand and cobble. A heavy growth of beachgrass begins on the upper beach face and extends over three distinct and increasingly elevated dune ridges. The highest ridge is 15.5 ft. above MSL. Vigorous grass growth continues on the pond side of the access road.

Several homes are built along the road behind the crest of the highest dune ridge. They are several hundred feet from the beach and appear well protected from storm damage by the broad expanse of dune in front of them.

Storm History: Comparison of 1938 and 1954 hurricane flood levels with present dune heights indicate that the homes built on the back dune are probably safe from hurricane damage or flooding. The access road, however, is low enough to be flooded during severe storms. Existing development does not appear to damage the dune.

RECOMMENDATIONS:

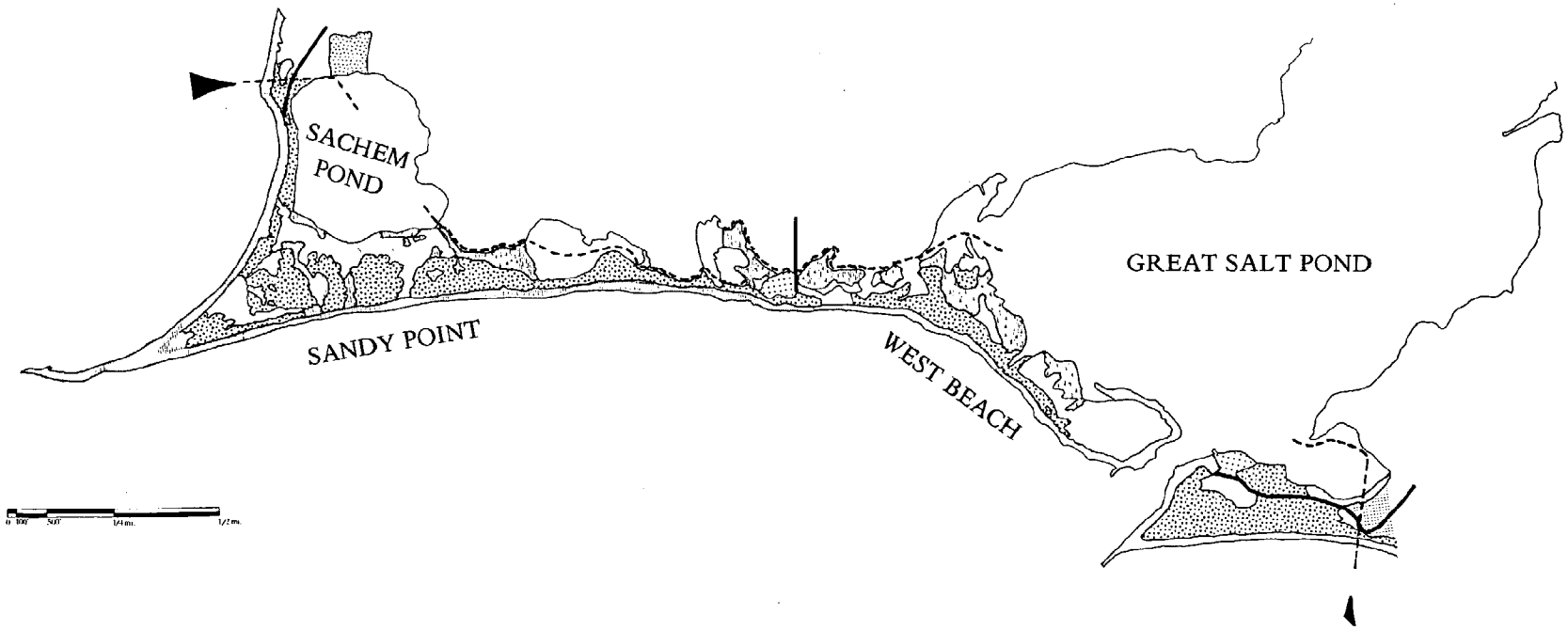
1. If public use of the dune field on Sandy Point increases, visitors should be restricted to stabilized footpaths.
2. The town should continue to manage the Sandy Point dune field as a Wildlife Conservation Area.
3. Existing zoning restrictions on shoreline development should remain in force.

RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

SANDY POINT AND GREAT SALT POND BARRIERS

- UNVEGETATED SAND OR COBBLE
- BEACH GRASS
- SECOND GROWTH
- MARSH
- AGRICULTURAL
- RESIDENTIAL
- COMMERCIAL AND RECREATIONAL
- INDUSTRIAL AND GOVERNMENTAL

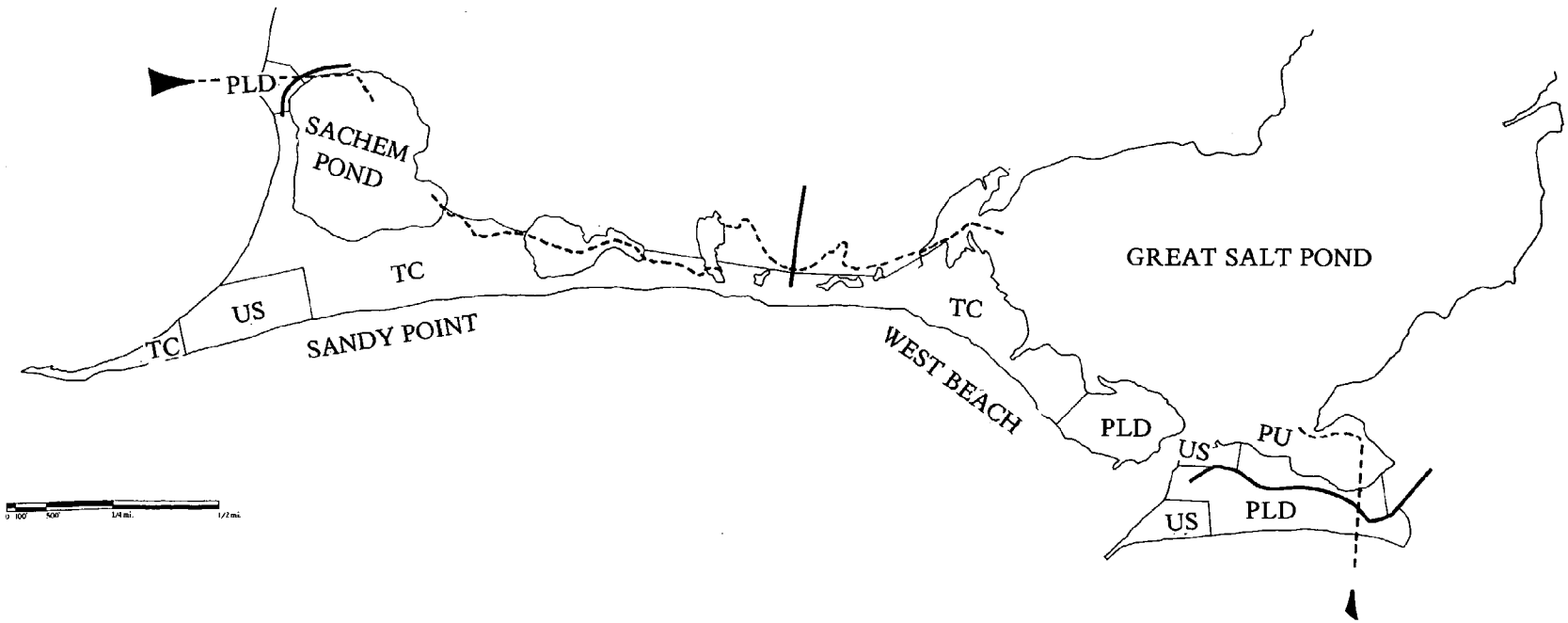


RHODE ISLAND BARRIER BEACH STUDY

COASTAL RESOURCES CENTER
UNIVERSITY OF RHODE ISLAND
JANUARY 1973

SANDY POINT AND GREAT SALT POND BARRIERS

PU	Private Undeveloped
PC	Private Conservation
PB	Private Beach (commercial or club)
PLD	Private Limited Development
PUD	Private Urban Development
TC	Town Conservation
TB	Town Beach
DC	Special District Conservation
DB	Special District Beach
SC	State Conservation
SB	State Beach
SUD	State Urban Development
US	Federal



DATE DUE

GAYLORD	No. 2333		PRINTED IN U.S.A.

NOAA COASTAL SERVICES CENTER LIBRARY

3 6668 14105 8257