QL683.L66L66 1991 c.1

DRAFT

LONG ISLAND'S BEACH-NESTING SHOREBIRD HABITAT:

Protection and management of a vulnerable resource

Prepared By:

New York State Department of State
Division of Coastal Resources and
Waterfront Revitalization

and

The Nature Conservancy

April 1991

QL
683
.L66
L66
1991

ACKNOWLEDGEMENTS

This report is the result of a joint effort by the New York State Department of State, Division of Coastal Resources and Waterfront Revitalization (DOS) and The Nature Conservancy (TNC). Preparation of this report was funded in part by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, with a grant provided under the Coastal Zone Management Act of 1972, as amended. The Nature Conservancy's field work for preparation of this report was partially funded by the Zoos, Botanical Gardens and Aquariums Program, which is administered by the New York State Office of Parks, Recreation and Historic Preservation for the Natural Heritage Trust. Additional funding for The Nature Conservancy's Plover and Tern Stewards was provided by the Return A Gift to Wildlife Fund, administered by the New York State Department of Environmental Conservation.

Many individuals contributed to production of this document. Under the supervision of Karene Motivans of the Long Island and South Fork-Shelter Island Chapters of The Nature Conservancy, early drafts of Chapters Two, Three, Four, and Five were prepared by Peter Polshek. Ed LaRue and Sharon Dougherty, TNC plover and tern stewards, drafted most of the site specific narratives and maps in Chapter Seven. Karene Motivans also prepared some site narratives and maps, in addition to compiling most of the information in the appendices.

Amy Lester, of the New York Field Office of The Nature Conservancy, and Tom Hart, of the Department of State's Division of Coastal Resources and waterfront Revitalization, wrote the final report. Format and layout of the final report were done by Tom Hart. Final maps were prepared by Greg Capobianco (DOS) and Tom Hart. Regional index maps were provided by John Ozard of the Department of Environmental Conservation.

Many individuals helped proof-read site specific narratives; most are acknowledged as "contacts" for "their" sites in Chapter Seven.

A special thanks is extended to Carl Safina, John Zarudsky, Bill Kolodnicki, and Larry Penny for all their assistance. Greg Capobianco and Kevin Cross (DOS) assisted with proofing and editing throughout the document. Computer support was provided by William Cross (DOS), who made printing this document possible.

Without the years of data compiled by the Seatuck Research Program, this report would have been impossible. A very appreciative thanks is extended to past and present staff and volunteers of this very fine, and enduring, organization.

The following are acknowledged for granting permission to use copyrighted materials:

William T. Fox (author) and Clare Walker Leslie (illustrator) of "At the Sea's Edge" (1983) for Figures 1, 2, 3 and 5 in Chapter One, reprinted by permission of the publisher, Prentice-Hall, Inc., Englewood Cliffs, NJ; and

Stephen P. Leatherman's "Barrier Island Handbook" (1982) for Figures 4 and 6 in Chapter One.

LONG ISLAND'S BEACH-NESTING SHOREBIRD HABITAT:
A Guide to Protection and Management of a Vulnerable Resource

Acknowledgements i
Table of Contents ii

Introduction 1

1.0 Coastal Processes 4
- 1.1 Glacial History and Geology
- 1.2 Climate and Weather
- 1.3 Waves and Currents
- 1.4 Spit Formation
- 1.5 Development of Salt Marshes and Coastal Salt Ponds
- 1.6 Dune Growth and Stabilization
- 1.7 Formation of Barrier Islands
- 1.8 Migration of Dunes and Barrier Islands
- 1.9 Adverse Impacts of Shoreline Structures

2.0 Habitat Descriptions and Functions 10
- 2.1 Maritime Sand Beaches and Dunes
- 2.2 Salt Marshes and Salt Marsh Islands
- 2.3 Dredge Material Deposition Sites
- 2.4 Intertidal Beaches and Mudflats
- 2.5 Subtidal Marine Deep Waters
- 2.6 Subtidal Estuarine Deep Waters/Tidal Rivers
- 2.7 Coastal Salt Ponds
- 2.8 Freshwater Ponds

3.0 Species Biology 14
- 3.1 Species Distribution and Population Status
- 3.2 Species Descriptions
- 3.3 Arrival on Long Island
- 3.4 Nesting
- 3.5 Care and Feeding of Chicks
- 3.6 Responses of Adults to Disturbance
- 3.7 Foraging Habitats and Strategies
- 3.8 Migration and Winter Habitat Ranges

4.0 Adverse Impacts on Beach-nesting Shorebirds 22
- 4.1 Coastal Land Development
- 4.2 Recreational Uses
- 4.3 Dredging Operations
- 4.4 Environmental Degradation and Predation
- 4.5 Vegetation Succession
- 4.6 Flooding

5.0 Reducing Adverse Impacts 25
- 5.1 Coastal Land Development
- 5.2 Recreational Use
- 5.3 Dredging Operations
- 5.4 Environmental Degradation and Predation
- 5.5 Vegetation Succession
- 5.6 Flooding

6.0 Existing Responsibilities for Resource Management 33
- 6.1 Federal Agencies
- 6.2 State Agencies
- 6.3 County Agencies
- 6.4 City, Town, and Village

7.0 Site Narratives and Maps 39
- Queens and Nassau Counties 43
- Babylon, Islip, Huntington, Smithtown 83
- Brookhaven and Riverhead 109
- Southampton 127
- East Hampton 161
- Shelter Island and Southold 179

8.0 Appendices 205
- 8.1 Species Referenced by Common Name
- 8.2 Public Agencies
- 8.3 Private Organizations
- 8.4 References

INTRODUCTION

Despite the explosion of human population growth on Long Island since World War II, this 120 mile long and 25 mile wide island, with a 1989 population of seven million, continues to make major contributions to the natural diversity of New York State and the northeastern United States. Astonishing gems of natural communities, such as Nassau County's 18 acre remnant of the Hempstead Plains grassland and Suffolk County's extensive dwarf pine barrens, have survived the onslaughts of commercial and residential development. Long Island is a stronghold for the rare sandplain gerardia (*Agalinis acuta*), a diminutive annual plant whose purplish-pink blossoms open for only a few hours before wilting and falling from their stems. But perhaps the most remarkable, and resilient, of Long Island's natural resources is its 1,475-mile shoreline, which includes long, finger-like barrier islands with extensive beach and dune systems, large and small estuaries where fresh water meets salt water, protected bays with tidal salt marshes and submerged eelgrass meadows, and freshwater and saltwater coastal ponds.

This coastal ecosystem provides the resource base for many industries: commercial fisheries, recreation, harbors and ports, and second-home development. Ironically, the very resources that support and provide opportunities for this economic growth and human prosperity are threatened with severe degradation, including extirpation of species and natural habitats, by such development. Economists and analysts have created complex formulas for determining "dollars and cents" values of growth and development to local municipalities, business and industry, and the general public. It has proven to be a far more difficult and, perhaps, impossible task to figure out "dollars and cents" values of a natural tidal salt marsh, an undisturbed sandy beach, and a wild Piping Plover. Yet, unquestionably, the existence of high quality examples of these natural resources does have value to humans, both economically and spiritually. It is not the purpose of this document to develop economic justifications for the conservation and management of Long Island's coastal habitats and species; it is based on the premise that these resources are of immeasurable value and must be protected.

Purpose

The purpose of this document is to focus on protection of a particular aspect of Long Island's coastal ecosystem, that of essential habitat for four species of endangered and threatened beach-nesting birds: Piping Plovers (*Charadrius melodus*), Least Terns (*Sterna antillarum*), Roseate Terns (*Sterna dougallii*), and Common Terns (*Sterna hirundo*). These species *require* access to and use of several coastal habitats for breeding and raising young. Their use of these areas is seasonal, and they can tolerate varying levels of concurrent human use throughout the breeding season. Protection of habitats critical to the continued survival of these birds *does not mean* the permanent exclusion of humans from these areas; it will, however, require education and cooperation of users and regulators to ensure that human activities occur in a manner compatible with protection of significant habitats and species.

Under provisions of NYS's Waterfront Revitalization and Coastal Resources Act, Executive Law (Article 42), the Coastal Management Program of the NYS Department of State's (DOS) Division of Coastal Resources and Waterfront Revitalization has worked with the Department of Environmental Conservation's (DEC) Significant Habitats Unit to identify, describe, and map "significant coastal fish and wildlife habitats" on Long Island. Although many designated significant habitats are not areas used by beach-nesting birds, more than half of the designated sites on Long Island are based on their use by plovers and terns. Some sites addressed in this report were not among the initial set of sites designated by DOS as significant coastal fish and wildlife habitats, usually because of lack of confirmed reports of use by plovers and

terns at the time the designations were proposed and finalized. This report treats these sites as no less "significant" than designated sites, and provides data to justify designation in the future.

This report is designed to serve as an ecological primer for citizens, conservation organizations, local legislators, municipal officials, zoning boards, and other interested individuals and organizations. It focuses on protection of habitats essential to survival of Piping Plovers and Least, Roseate, and Common Terns. While it is not intended to be a complete treatise about the birds and their habitats, this report attempts a comprehensive overview, summarizing critical information about the birds, their habitat requirements, and the natural and human forces that influence the character and quality of their habitats.

Structure

Chapters One through Seven are generic in nature. **Chapter One** provides basic information on the coastal processes that formed Long Island's barrier beaches, bays, and salt marshes. **Chapter Two** describes nesting and foraging habitats that plovers and terns depend on for survival and reproduction on Long Island. **Chapter Three** presents relevant life history information on the four bird species of concern. **Chapter Four** addresses threats, both natural and human-caused, that degrade and destroy vital habitats, thereby reducing the birds' chances for a successful breeding season and causing another incremental loss to their already reduced populations. **Chapter Five** suggests ways to reduce or eliminate most human-caused adverse impacts on plover and tern habitats, thereby contributing to the chances of their successful reproduction and, eventually, recovery and stabilization of their East Coast populations. **Chapter Six** describes, in a general way, most of the federal, state, and local regulatory and management agencies having some jurisdiction over the four bird species themselves or Long Island's coastal areas that comprise their habitats.

Chapter Seven comprises the substance of this report. Over 140 sites used for nesting by plovers and/or terns are each described and mapped in a standard format and includes a summary of information on current and historical use, condition of habitat, and threats to the habitat. Although federal, state regulators and local planning and zoning boards are usually aware of the ecological significance of many of these sites, they often do not have first-hand knowledge or detailed enough information at their fingertips about a particular site to make an informed decision on an activity requiring a state permit. These "site specific" narratives may help them make more informed decisions.

Data from a variety of sources were used to complete the site specific narratives and maps. Most of the information on numbers of nesting birds comes from the Seatuck Research Program's annual Long Island Piping Plover and Colonial Waterbird Surveys. Most of the information on land ownership and threats to the habitats was compiled by staff of the Long Island and South Fork - Shelter Island Chapters of The Nature Conservancy. Biologists of DEC's Region 1 office in Stony Brook, staff and volunteers of the National Audubon Society and local Audubon chapters, and several town employees also contributed significantly to the site specific narratives.

This report closes with **Appendices** that provide contact lists of people, organizations, and agencies involved in protection of Long Island's coastal habitats, as well as other resource and technical information.

1.0 COASTAL PROCESSES: Understanding the underlying forces that create shorebird nesting habitat.

Information in this section was taken primarily from William T. Fox's At the Sea's Edge (1983).

1.1 Glacial History and Geology

Long Island marks the southernmost boundary of the ice sheet of the last glacial period, which ended 15,000 - 20,000 years ago. When southward movement of the glacier stopped and ice began to melt, sediments carried within and on top of it were deposited as a glacial moraine, forming the north shore of Long Island. Melt-water streams carried sand and silt southward from the moraine, forming the south shore of Long Island, an outwash plain. Once glacial action was complete, coastal processes began to act upon the shoreline.

1.2 Climate and Weather

Climate is a major factor in determining whether sediments are eroded or deposited on a particular coast. Long Island is under the influence of the climate of North America's continental interior. This is characterized by repeated interactions of cold, dry, arctic air masses and warm, moist, tropical air masses, producing seasonal extremes in temperature. The coast is besieged by summer thunderstorms, late summer and early autumn hurricanes, and winter blizzards. Winter storms are typically the most severe because the contrast between arctic and tropical air masses is at its greatest.

1.3 Waves and Currents

As they blow across the surface of the ocean, winds generated by the meeting of warm and cold air masses create waves. Wave size is determined by the speed and duration of wind and the distance of water over which the wind has travelled. Wave height is defined as the vertical distance from the top of the crest to the bottom of the trough (see Figure 1). Generally, the higher the wind speed, longer the wind duration, and greater the distance over water the wind has travelled, the higher the waves. When waves leave the area of an ocean storm where they were generated, they become swells. As swells move away from the storm, wave heights gradually decrease, forming a succession of waves of about the same height and period. (Period of a wave is the amount of time, usually measured in seconds, required for a complete wave to pass a stationary point). Most waves reaching the coast are products of ocean storms.

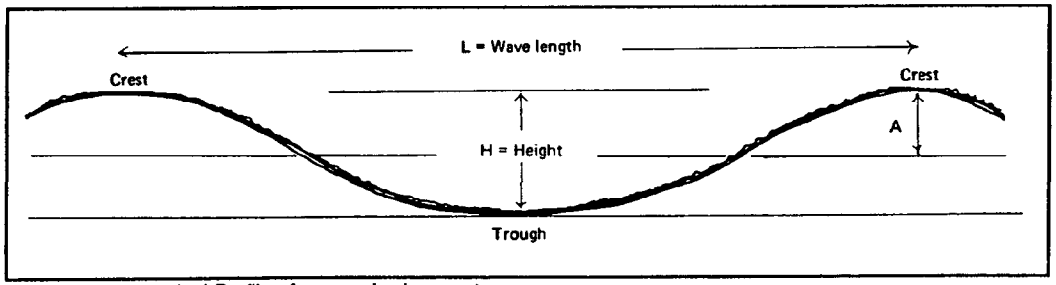


Figure 1: Symmetrical Profile of a wave in deep water.

While in deep waters, waves are unaffected by the ocean bottom. When waves enter shallower waters, however, they are modified and distorted by the bottom. At the point where the depth of the water is one-half the wave length (the distance between two wave crests), friction causes the bottom of the wave to slow down, but the surface of the wave continues at the same speed. This causes a decrease in wave length and an increase in wave height, eventually resulting in a breaking wave (see Figure 2).

Shallow-water wave processes are the primary factors in formation of beaches and barrier islands. Waves may "break" on a beach, spreading their energy up over the sand or be "reflected" by a steep shore or bulkhead, sending a portion of their energy back into the ocean.

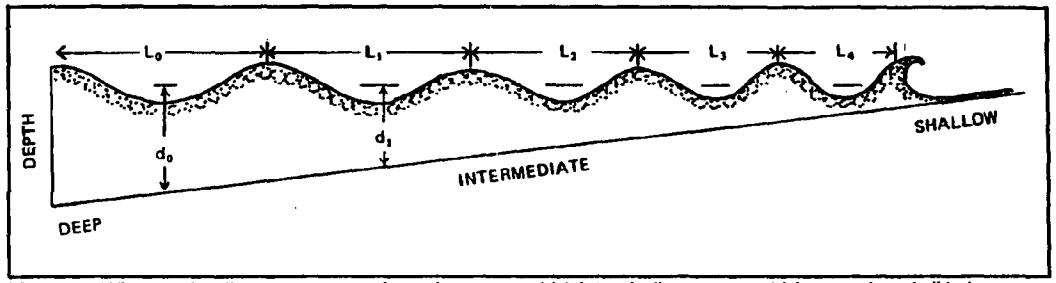


Figure 2: When a shoaling wave moves from deep water (d_0) into shallower water (d_1), wave length (L) decreases and wave height first decreases, then increases as the wave breaks.

Steep, breaking waves from an ocean storm stir up bottom sediments and cause shoreline erosion. Gentler, low-profile waves can wash sands back on to the shore, gradually rebuilding the beach. When incoming waves are reflected by a sea wall, an outgoing wave of the same period is formed. When outgoing waves meet incoming waves, an offshore "standing" wave pattern is established. The larger and heavier suspended sand particles drop to the bottom, forming underwater off-shore bars.

Swash and Backwash

As a wave breaks at an angle to the shore, as most waves do, a sheet of water carrying suspended sediments rushes obliquely up the beach. This action is called "swash." As the wave's energy dissipates, suspended particles are deposited on the beach, and gravity and the contour of the beach cause the water to flow back to the ocean directly, at right angles to the shoreline. This action is called "backwash." The constant, repetitive swash and backwash process redistributes an enormous amount of sand and other particles along the length of a shoreline. This directional transport of sand induced by wave action is known as littoral drift.

Long-shore Currents

Waves that break at an angle to the shore create currents that flow parallel to the shore. These "long-shore" currents may travel between off-shore bars or between the beach and an off-shore bar, creating a shallow trough just beyond the low tide level (which can surprise beach waders with a sudden plunge into deep waters). Storm waves typically generate stronger long-shore currents than do swells. Long-shore currents can also carry substantial sediment loads, contributing to the littoral drift. Long Island's long-shore currents generally travel from northeast to southwest along the Atlantic Ocean coast, but also vary under local conditions and prevailing seasonal winds.

1.4 Spit Formation

Where a bay or curved shoreline meets an otherwise straight section of shoreline, waves, long-shore currents, and swash and backwash all contribute to formation of a "spit." Sediments are carried in the direction of the waves and long-shore currents and are deposited at the "end" of the straight shoreline, where the shoreline turns landward at the edge of the bay. Initially, the spit develops underwater. If it weren't for changing water elevations, the sand spit would never rise above the water's surface. In the presence of tides, however, the spit may become exposed at low tides. Breaking waves, swash and backwash deposit more sand, increasing the spit's elevation and underwater elongation. If the process continues, the spit may be exposed at high tides, resulting in the emergence of new land (see Figure 3).

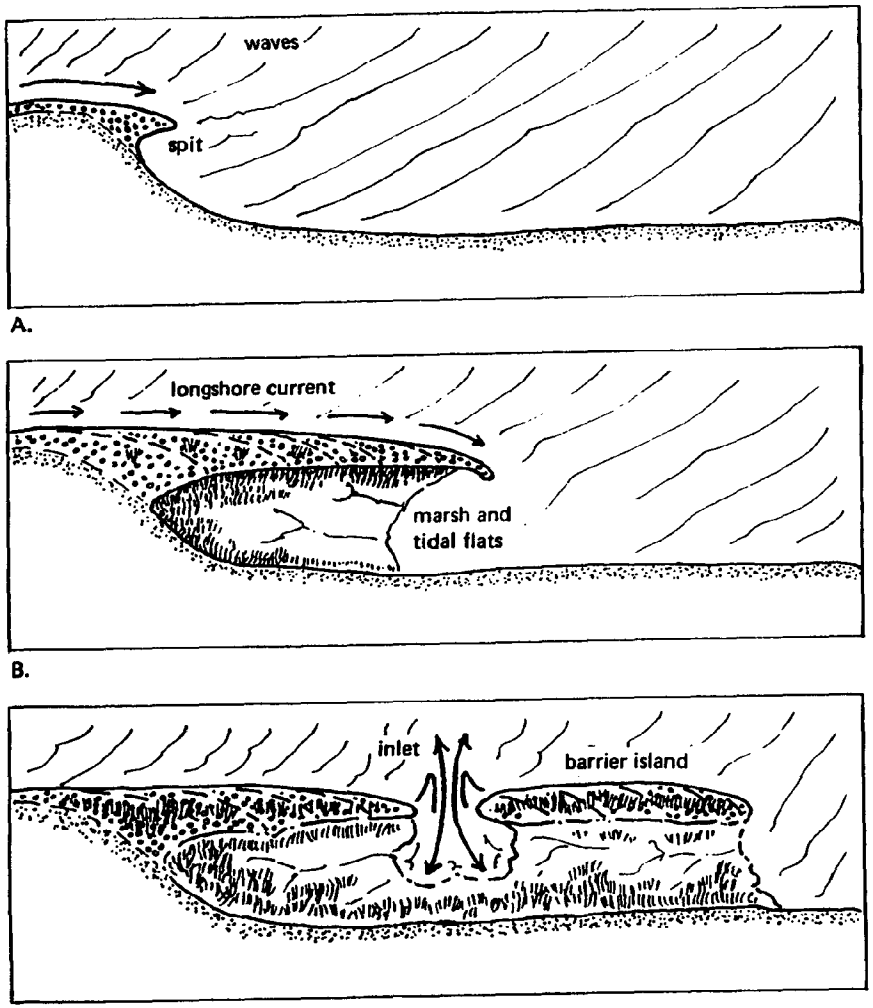


Figure 3: Barrier island formation. (A) Spit grows from point of land; (B) spit extends along the coast; (C) breach forms tidal inlet and barrier island.

1.5 Development of Salt Marshes and Coastal Salt Ponds

Waters landward of the growing spit become protected from breaking waves and currents, and these quieter waters drop their finer suspended sediments in the bay. Additional organic matter and sediments are deposited by rivers, creeks, and upland areas and the bay becomes shallower and warmer. In the most protected areas, rooted aquatic vegetation takes hold, trapping even more sediments and providing habitat for other plants and for marine microorganisms and invertebrates, which form the basis for a complex food web that eventually supports large predatory fish, fish-eating birds, and even humans. Tidal salt marshes develop, ranging from mudflats with sparse emergent vegetation exposed only rarely, even at low tide, to thickly vegetated high marshes occurring between mean high and the limit of spring tides.

Coastal salt ponds form when a growing spit reaches the opposite shore or the inlet to the bay closes, sealing off the bay from the ocean and forming a lagoon. In some cases, salinity of a salt pond exceeds that of the ocean because evaporation of water from its surface concentrates the remaining salts.

1.6 Dune Growth and Stabilization

When land emerges from the ocean and sediments remain exposed at high tides, wind begins to influence the growth of dunes. Anything that will trap sand particles - a piece of driftwood, large seashell, or vegetation - will cause the wind to deposit sand, and a dune will form. As a dune grows higher, its resistance to wind increases, resulting in more sand being deposited on its crest or filling in its leeward side. Seaweed deposited by waves and tides adds nutrients and organic matter to the otherwise sterile sand, increasing its ability to retain moisture and nourish plant life. Rooted vegetation, such as American beachgrass (*Ammophila breviligulata*), is the most effective sand-trap. As beachgrass colonizes the dunes, a more stable environment develops, allowing

other plants to move in, including the nitrogen-fixing beach-pea (*Lathyrus japonica*), further increasing soil nutrients that are available for other species.

1.7 Formation of Barrier Islands

Several theories have been introduced to explain how barrier islands develop. It is now generally accepted that more than one factor is usually involved, and no single theory can explain the origin of all barrier islands. Long Island's Fire Island probably began as a spit growing southwestward from Southampton, roughly parallel to the shoreline (which extended about one mile seaward of its present location) about 4000 years ago. The southwesterly flowing long-shore current carried highly erodible sediments from the shoreline between Southampton and Montauk and deposited them on this newly created spit, which grew about 80 feet per year (Amos and Amos 1985). Over the past 3000+ years, the sand spit grew to be about 50 miles long, although its width probably never exceeded 1000 feet. In more recent times, storm waves or high tides overwashed and eventually breached the spit in two places (now known as the inlets to Great South and Moriches Bays), and Fire Island was created (see Figure 3).

The islands west of Fire Island may have developed somewhat differently. One theory suggests that these islands originally formed as dunes and ridges on beaches over 4000 years ago when sea level was significantly lower than its current level. As the glacier melted, sea level rose, eventually submerging lower portions of the beach "behind" the ridges and leaving the ridges exposed as barrier islands (see Figure 4).

1.8 Migration of Dunes and Barrier Islands

Dunes and barrier islands can either erode and dissipate or be moved landward, particle by particle, by the combined forces of wind and water. Landward movement of a barrier island is called

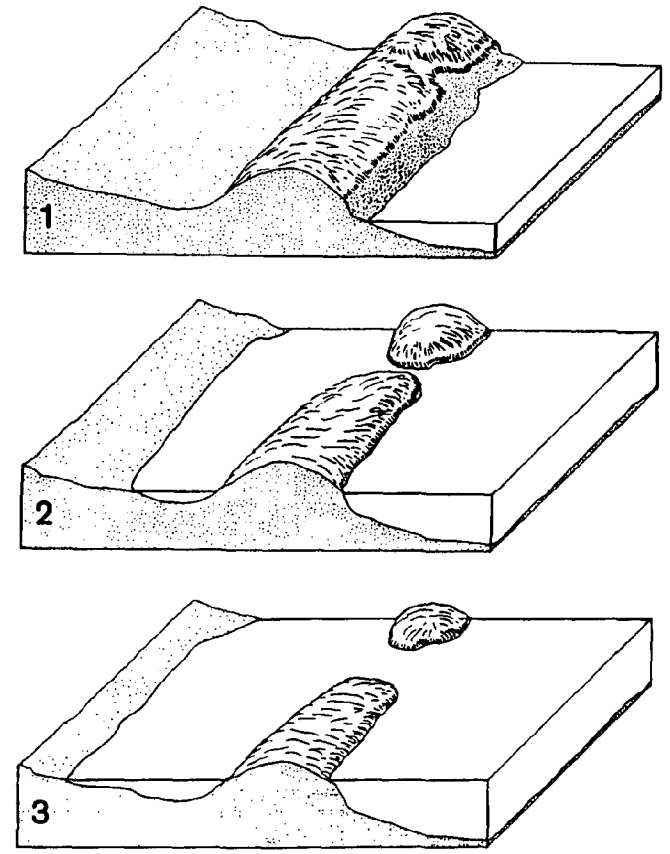


Figure 4: Alternative theory of barrier island formation by drowning of a mainland beach/dune ridge.

"migration" or "barrier island retreat." It occurs in a variety of ways, but is generally a slow process, requiring years to show obvious movement. This makes it a particularly difficult phenomenon for developers and owners of beach-front homes to appreciate and anticipate.

Dunes migrate when they lose their stabilizing elements, usually vegetation, to storm surges, off-road vehicles, or bulldozers. The wind creates "blow-outs," moving sand farther back on the shore, perhaps to form another dune or settle in a marsh or lagoon behind the barrier beach. As the fore-dune is reduced in size by wind, it becomes more susceptible to erosion by waves. Swash and backwash and long-shore currents carry sand away from the diminishing beach and dune, depositing it farther downdrift.

When a strong storm system builds up, ocean water is actually "piled up" against the shoreline, pushed by winds and tides. This build-up of water allows large waves to overwash a dune, spreading sand in an "overwash fan" behind it. Overwash may move sand to the leeward side of the dune, or in a marsh or bay behind the dune. As the seaward side of the dune erodes, the leeward side gains sand, resulting in a net landward movement of the dune or the creation of a second dune behind the first dune.

Barrier island retreat is similar to dune migration, but major movement may be more influenced by the continuous gradual rise in sea level than by discrete storm surges, and therefore is even less apparent to the casual observer. Today, sea level continues to rise, although at a slower pace than has occurred for the first 10,000 years of glacial melting and retreat. As waves reach incrementally higher levels on beaches and dunes, water levels in bays and lagoons behind barrier islands and beaches also rise and gradually inundate mainland coastal areas. Winds, waves, overwash surges, and inlets move sand from the seaward edge of barrier islands to the landward side, filling lagoons and creating salt marshes, which are, in turn, filled with more sand and may eventually emerge as dry land (see Figure 5). New land would extend the bayside shoreline of the barrier island landward, and taken in combination with the erosion of sand from the ocean side of the barrier island, can result in a net landward movement of the entire barrier island. In the absence of barrier island retreat, the

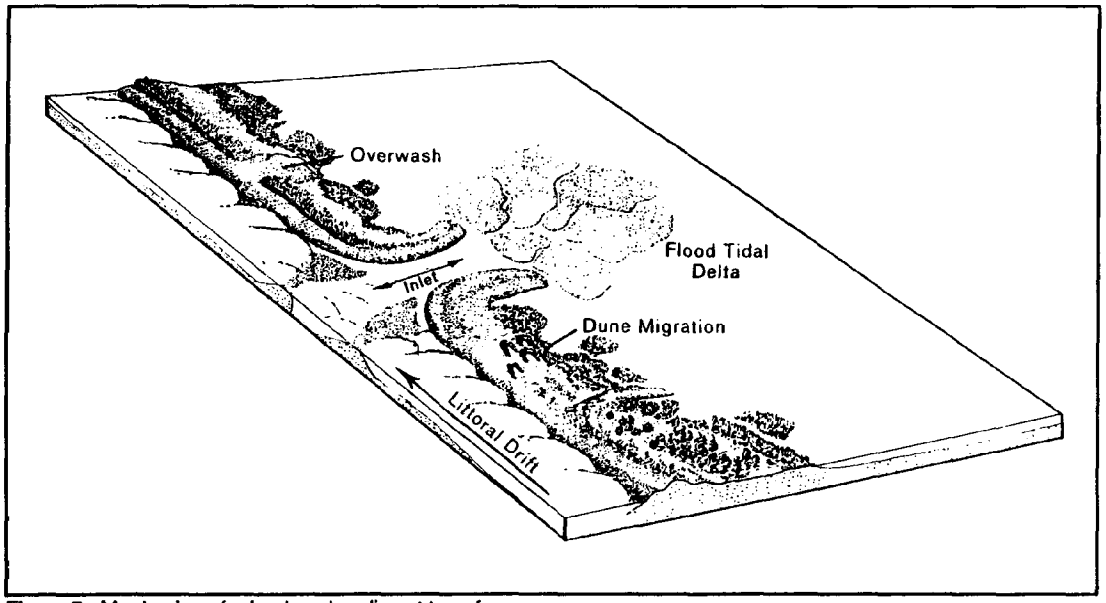


Figure 5: Mechanisms for landward sediment transfer.

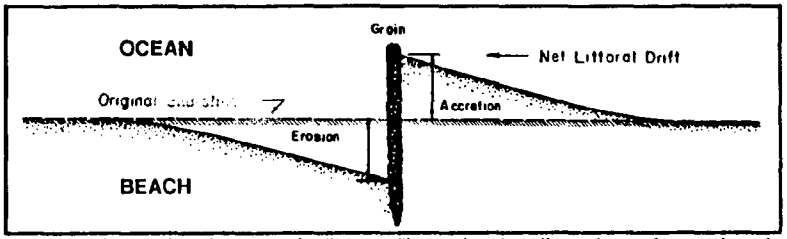


Figure 6: An overhead schematic diagram illustrating the effect of a groin on a beach.

erosive effect of higher sea level may attack both sides of the barrier island, reducing the width of the island and making it vulnerable to breaching and new inlet formation by storms.

Either landward migration or net erosion of barrier islands and dunes is inevitable as long as sea level continues to rise. Whether erosion or migration is rapid, due to occasional storm surges and overwash, or very gradual, due to a rising sea level, is less important than an appreciation of the underlying instability of barrier beaches and other exposed sandy shorelines.

1.9 Adverse Impacts of Shoreline Structures

A variety of structural approaches have been used in an attempt to counteract the underlying instability of barrier islands and other sandy shorelines. Most of these efforts can be classified as "shore-hardening structures" such as groins, bulkheads, rubble mound revetments and breakwaters. These engineering solutions to an unstable shoreline share the common goal of holding the shoreline in place. Groins are shore-perpendicular jetties which are designed to hold the shoreline in place by trapping sand that is transported by wave action in littoral drift. Bulkheads, revetments, and breakwaters attempt to hold shorelines in place by reducing the effect of waves on the shoreline.

Structural approaches are usually employed to protect stationary development that has been placed in this inherently unstable environment. In addition to protecting homes that are vulnerable to storms and shoreline erosion, larger scale structures have been built in an effort to maintain inlet channels through the barrier islands for boating or to enhance the stability and size of the barrier island in an effort to reduce the potential for hurricane-induced damage of the mainland.

Although structural approaches have been well-intentioned, alteration of the shoreline by construction of bulkheads, groins and jetties has had unexpected and dramatic adverse impacts on erosion and deposition. Waves and long-shore currents erode sand from the updrift side of a groin and deposit it in a scalloped pattern on the groin's down-drift side (see Figure 6). Gains realized on one side of a groin often appear to be lost in an adjacent area. In fact, the result may be a net loss of shoreline material since groins block the long-shore movement of sand, diverting the natural source of sediments that keep beaches nourished with a constant supply of sand. This is dramatically apparent at Westhampton Beach, where groins were constructed in the mid-1960's as part of an enormous effort to fortify the barrier island against hurricanes. Twenty years after their construction, the barrier beach immediately west of the westernmost groin has been significantly eroded with the unfortunate consequence of having houses either falling into the ocean or precariously standing 25 feet in the air on skewed pilings that had once been underground.

Dredged inlets that have been stabilized with large jetties also have had severe adverse impacts on barrier beaches. The barrier beach west of Shinnecock inlet provided a good example of erosion induced by the effects of an inlet. Not only do the jetties have the beneficial effect of reducing the amount of sedimentation in the inlet channel but they also induce starvation of the adjacent beach by removing sand from the littoral system and depositing it in deltas in the ocean and in the bay at either end of the inlet.

The fact that many efforts made to stabilize the shoreline appear to also result in an equal or greater destabilization elsewhere underscores the dynamic nature of these shorelines. Even without structural alteration, these shorelines are extremely unstable, existing in a state of constant flux with the effects of wind, waves, and tides. It is important to recall that these are the very forces which create barrier beaches. Similarly, the shorebird habitats that these environments provide are also dynamic, and even more susceptible to change by these forces.

2.0 HABITAT DESCRIPTIONS AND FUNCTIONS: Ecological values of different parts of the coastal environment to shorebirds.

Habitats included within the Significant Coastal Fish and Wildlife Habitat designations provide both nesting and foraging areas for the four species of birds that are the concern of this management plan. This section first addresses nesting habitats (2.1 - 2.3) and then discusses foraging habitats (2.4 - 2.8). Protection of high-quality nesting and foraging areas is extremely important to the continued survival of Long Island's populations of terns and plovers. The following descriptions are adapted from the New York Natural Heritage Program's (NYNHP) community classification (Reschke 1987). For purposes of this plan, NYNHP's natural communities are sometimes combined based on their functional similarities in use by birds.

2.1 Maritime Sand Beaches and Dunes (NYNHP: maritime sand beach and maritime dunes)

Beaches and dunes are present along much of Long Island's ocean and bay coastlines, and occur above the mean high tide level. They are composed of sand or sand/cobble beaches that can be greater than 450 feet wide. Vegetation on the beach is sparse, and the structure and form of the beach itself can be transformed overnight by storm waves and wind. Most of these beaches are backed by sand dunes. Dune systems vary in structure, ranging from unstable, unvegetated, low profile dunes to those that are high, vegetated, and stable. The sand beach/dune system is constantly being modified by the erosive forces of wind and water. Vegetation is present at landward edges of beaches and is characteristic of most dune systems. Typical plant species present on maritime beaches and foredunes include beachgrass, seaside goldenrod (*Solidago sempervirens*), beach-pea, sea-rocket (*Cakile edentula*), and dusty-miller (*Artemisia stellariana*).

Exposed, unvegetated areas within this system are the only natural habitat used for nesting by Piping Plovers and Least Terns and are the primary nesting habitats for Common Tern.

Because this habitat is above the mean high tide level, it is not subject to daily tidal flooding. Severe winter storms and hurricanes can combine with high tides to overwash these areas at certain times of year, but wind is the primary natural force changing this habitat on a day-to-day basis. Nesting birds can be threatened and disturbed by occasional high water and flooding, but people, who use these areas for sunbathing, picnicking, walking, driving recreational vehicles, and staging areas for commercial fishing, are the major source of disturbance to adults and chicks.

2.2 Salt Marshes and Salt Marsh Islands (NYNHP: salt marsh)

Salt marshes and salt marsh islands occur along the edges or within most of the large and small bays of Long Island. A salt marsh is usually subject to tidal flooding twice a day - not a good place for a beach-nesting bird to lay its eggs. Around the edges of, and sometimes within salt marshes, however, there are often slightly elevated areas above mean high tide level. These may be open, sandy areas but are more frequently vegetated with salt-meadowgrass (*Spartina patens*), beachgrass, and associated herbaceous species.

In the past several years, perhaps because of loss of suitable beach habitat, Common Terns have begun nesting in salt marshes and on salt marsh i[illegible] They often form linear colonies along the wrack line deposited by winter storms at these sites.

The major threats to nesting terns in these areas comes from unexpected high tides or spring storms that flood even the elevated sites, and predators, which may use the vegetation to conceal their approaches to nesting adults, eggs, and chicks.

2.3 Dredge Material Deposition Sites: mainland and islands (NYNHP: marine dredge spoil shore)

This artificial habitat consists of subtidal sediments deposited on existing coastal landforms or used to create new dry land. Such sediments are usually by-products of dredging operations associated with boat channels and harbors. Characteristics of the deposited sediments determine suitability of these lands for nesting Piping Plovers and Least, Common, and Roseate Terns. Optimal sediments consist of a high proportion of sand, shell fragments, and pebble/cobble and a low proportion of organic material, clay, and silt.

Dredge disposal sites frequently have more rapid rates of vegetation succession than do natural beaches and dunes. Piping Plovers, Least Terns, and Common Terns may use recently created, suitable unvegetated dredge disposal sites for nesting. Roseate Terns may nest in older, more vegetated sections of these areas, which are also used occasionally by Common Terns. Factors which limit vegetation on natural beaches are usually unable to prevent vegetative succession on dredge disposal sites because of higher elevations, stabler sediments, and generally more protected locations. Without deposition of new material or scraping by bulldozers, the ability of dredge materials to support beach-nesting birds is generally short-lived.

One potential advantage of a dredge disposal island for nesting birds is the lack of terrestrial predators (because it is newly created land). Size of the island, however, is related to its suitability for nesting terns and plovers; islands over 20 acres are more likely to support predators year-round, and become unsuitable for nesting plovers and terns unless predator control programs are undertaken.

2.4 Intertidal Beaches and Mudflats (NYNHP: marine intertidal gravel/sand beach and marine intertidal mudflats)

This is the primary foraging area for Piping Plover adults and chicks. It occurs between the highest and lowest tide levels, and because of its dynamic nature and constantly moving substrate, is generally not vegetated. Tidal flooding twice a day delivers food for resident amphipods, insect larvae, and marine worms, which form the basis of the plovers' diets. Tides also deposit seaweed which teems with invertebrate life. Sand and gravel beaches typically occur in the high-energy waters of the ocean and are well-drained at low tide. Mudflats form in areas of quieter tidal waters within bays, with substrates composed of fine particles rich in organic matter and poorly drained at low tide.

Since plover chicks feed themselves from their time of hatching, but do not develop the ability to fly for at least another 4 weeks, suitable foraging habitat must be located immediately adjacent to suitable nesting habitat for Piping Plovers. Newly hatched chicks must be able to walk to foraging areas when the tide is low or receding, and walk back to the safety of their former nesting areas when darkness falls or during high tides and bad weather.

The major threat to Piping Plovers in their foraging areas comes from human disturbance, particularly vehicles driving on the firm, wet sands exposed at low tides; these not only scare birds away, but cause direct mortality by running over unseen, cryptic chicks crouched in the sand. Often these chicks have been observed

trapped in wheel ruts, waiting for the next vehicle to pass by and seal its fate. Sunbathers, swimmers, and walkers often unknowingly chase plovers away from their food and prevent chicks from getting the energy they need to survive.

2.5 Subtidal Marine Deep Waters (NYNHP: marine deepwater community and marine eelgrass meadow)

This habitat includes all types of oceanic open water below the lowest tide level without appreciable freshwater inflow. Salinities remain relatively constant (at least 18.0 parts per thousand ocean-derived salts) and substrates are constantly submerged. Much of the deeper substrates support no rooted vegetation, but eelgrass (*Zostera marina*) meadows, occurring in quieter and shallower waters, are highly productive and provide habitat for a variety of marine organisms. In general, these waters support an assemblage of fish species, such as sand lance (*Ammodytes americanus*) and pipefish (*Sygnathus fuscus*), that are the major food source for terns and other coastal-nesting bird species.

2.6 Subtidal Estuarine Deep Waters/Tidal Rivers (NYNHP: tidal river)

Although Long Island has only four major rivers (Peconic, Nissequogue, Connetquot, and Carmens), there are hundreds of smaller creeks providing freshwater inflow to its coastal waters. This particular habitat occurs where waters are generally over six feet deep at low tide and where fresh water meets salt water, with resulting salinities ranging from 0.5 to 18.0 parts per thousand salt. These are areas of low diversity and little to no rooted vegetation, but this habitat supports many fish species that are prey for terns.

2.7 Coastal Salt Ponds (NYNHP: coastal salt pond)

This habitat consists of coastal lakes and ponds formed by sand barriers that close off a lagoon or small bay. Occasionally, the barrier beach is broken by wave action caused by a storm, increasing salinity of the pond. The barrier eventually reforms, closing the site to the ocean. Many salt ponds have permanent inlets that may be natural or maintained by dredging. Characteristic vegetation includes dwarf spikerush (*Eleocharis parvulva*), switchgrass (*Panicum virgatum*), salt-meadowgrass, common reedgrass (*Phragmites australis*), and saltmarsh fleabane (*Pulchea odorata*). A variety of fish inhabit salt ponds and serve as prey to foraging terns. These small, shallow ponds may be critical as "training" areas for fledged terns to practice foraging techniques, because of their relatively calm surfaces.

2.8 Freshwater Ponds (NYNHP: subset of coastal plain pond)

These are permanently flooded, freshwater ponds occurring in Long Island's southern coastal plain within a mile of the saltwater shoreline. They are shallow and fed by groundwater, with annually and seasonally fluctuating water levels. Although typically characterized by an abundance of aquatic vegetation, including slender spikerush (*Eleocharis elliptica*), water-shield (*Brasenia schreberi*), white water-lily (*Nymphaea odoratai*), naiad (*Najas* spp.), waterweed (*Elodea* spp.), and pondweed (*Potamogeton* spp.), these freshwater ponds are significant foraging sites for terns. Several species of small fish provide food for Least Terns, particularly early in the breeding season. Like the coastal salt ponds, the relatively calm surfaces of these small ponds may make them critical to young terns as habitats to perfect their foraging techniques before undertaking their lengthy migrations to wintering grounds.

3.0 SPECIES BIOLOGY: An introduction to four beach-nesting shorebirds

Piping Plovers, Least Terns, Roseate Terns, and Common Terns are the species of beach-nesting birds considered in this management plan. All were nearly extirpated on Long Island and along the Atlantic coast during the latter part of the nineteenth and early part of the twentieth centuries as a result of intense, uncontrolled exploitation by plume hunters who supplied the thriving millinery industry with feathers. Passage of the Migratory Bird Act in 1918 banned hunting these species and allowed breeding populations to recover.

Although populations have fluctuated somewhat, until the 1960's the trend was generally upward. Since the 1960's, however, populations have been declining, primarily because of the equally destructive processes of habitat loss and human disturbance. Several aspects of reproductive biology common to all four species make them particularly vulnerable to disturbance at particular times of the breeding season. At other times, they can tolerate a degree of human activity without suffering negative impacts. This chapter summarizes the habitat requirements of these birds while they are on Long Island's beaches, generally from late March to early September.

Plovers and terns have several habits in common. All are ground-nesters who lay eggs on open, sandy beaches, dredged materials, rocky shores, or elevated areas within salt marshes, making eggs and nestlings particularly vulnerable to a wide range of predators. Nests may be only bare scrapes in the sand, and eggs are naturally camouflaged to make them less obvious to predators, but also rendering them extremely susceptible to unintentional destruction by off-road vehicles (ORVs) and crowds of recreational beach-users on Memorial Day and Fourth of July weekends. Intentional or inadvertent disturbance causes adults to leave their nests, exposing eggs and young to temperature extremes and predators. Young of these species are all highly mobile within days of hatching and move about widely in the vicinity of a colony or nest site. Re-nesting occurs if an initial nest is destroyed, but probabilities of survival of second-nest eggs and chicks are low, possibly due to intensive recreational use of beaches by mid-summer.

Reproductive success of these species in a setting undisturbed by humans depends on meteorological conditions, food abundance, and incidence of predation. These factors vary within and between breeding seasons, and species have evolved strategies that have allowed them to survive for thousands of years. Adult Piping Plovers lure potential predators away from nests and chicks with an elaborate "broken wing" display, giving the appearance of an easy meal for a hungry fox or cat, only to fly away when the danger to eggs and young is gone. Terns nest in colonies and mount mob attacks against day-time intruders and predators. Well-camouflaged chicks crouch motionlessly when threatened. All of these behaviors work well with non-human predators, but unaware beach users find dive-bombing terns annoying, not realizing they are sunbathing in the center of a tern colony. People are intrigued and worried about the "injured" plover, and continue to trail it, even after it has demonstrated its ability to fly. And invisible, motionless chicks are easily and inadvertantly killed by drivers of ORVs and dune buggies. Reduction of habitat and increase in human disturbance have taxed the abilities of these birds to maintain minimum viable populations.

3.1 Species Distribution and Population Status

Piping Plovers

Piping Plovers occur only in the western hemisphere, and three separate populations are recognized. Long Island birds belong to the Atlantic coast population, which breeds along bays and the ocean from South Carolina to Newfoundland. This population is

listed as "threatened" by the US Fish and Wildlife Service (USFWS); in 1987, approximately 575 pairs existed in the US, with an estimated 240 pairs in Canada. About 190 pairs nested in New York State, all on Long Island in 1989; the NY Department of Environmental Conservation (DEC) lists the Piping Plover as "endangered" in NYS. Current plover numbers for Long Island reflect a *73% decline* from Wilcox's 1959 estimate of 500 pairs.

The other two Piping Plover populations are the Northern Great Plains population, which nests along sand and gravel shores of rivers and lakes of the region and is also listed as "threatened" by USFWS; and the Great Lakes population, which historically was present on all five lakes' sand and gravel beaches, but is now restricted to a very few sites on the upper lakes and is listed as "endangered" by USFWS.

Least Terns

Like the Piping Plover, Least Terns occur only in the western hemisphere, and three subspecies are recognized. The eastern subspecies, which includes all of Long Island's birds, nests on sandy Atlantic Ocean beaches from Florida to Maine, along the Gulf of Mexico coast from Florida to Mexico, and on the Bahamian and Caribbean Islands. This subspecies is listed as "threatened" by USFWS and "endangered" by NYS DEC. Long Island is their only nesting area in NYS, where about 3100 pairs nested at 67 colonies in 1989 (Downer and Liebelt 1990).

The California and interior Least Tern subspecies, which nests along the Pacific coast from central California to Baja California and along shores of major rivers and their tributaries in the central US respectively, are both listed as "endangered" by USFWS (USFWS 1970, 1984, 1985a).

Roseate Terns

Roseate Terns occur throughout the world, in tropical and temperate climates. The North American population breeds in the Florida Keys and along the Atlantic coast, between and including Long Island and Cape Cod. USFWS and NYS DEC list Roseate Terns as "endangered." The North American population has declined 70% since the 1930's, and the Long Island population alone suffered a 66% decrease between 1974 and 1980 (Buckley and Buckley 1981). In 1989, approximately 1,300 pairs were reported in six Long Island area colonies with 91% of these occurring at a single site: Great Gull Island (Downer and Liebelt 1990).

Common Terns

Common Terns occur throughout the northern hemisphere with the exception of the North American Pacific coast. In North America, they breed along the Atlantic coast from Nova Scotia to North Carolina, in the Great Lakes region and on northern lakes and bays of central North America to the Arctic Ocean, along parts of the Gulf of Mexico coast, and on Caribbean Islands. Common Terns are Long Island's most abundant tern species, but because of their vulnerability to habitat loss, human disturbance, and predation, NYS DEC lists them as "threatened." The 1989 Long Island Colonial Waterbird and Piping Plover Survey reported approximately 25,200 pairs at 34 colonies. Eighty-four percent were found at only five sites: Great Gull Island, Cedar Beach Babylon, Jones Beach West End 1, Warner Islands, and East Inlet Island (Downer and Liebelt 1990).

3.2 Species Descriptions

Males and females of all four species are similar to each other in size and plumage, making distinctions between the sexes difficult to discern in the field. Plumage of juveniles is different from that

of adults, and adults generally have two seasonal plumages: a "nuptial" or breeding plumage and a winter plumage.

Piping Plovers

Piping Plovers are about seven inches long with a 15-inch wingspan. When seen on Long Island, the birds are in breeding plumage with white underparts, light beige back and crown, white rump, and black upper tail with a white edge. Their most distinctive characteristic, which sets them apart from other shorebirds on Long Island in the summertime, is a partial or complete black breast and neck band and a black bar across the brow. Their legs and bill are orange in the summer, with a black tip on the bill. Piping Plovers are typically seen standing or running along the beach, feeding at the water's edge, or sitting, standing, or running in the dunes where they nest. Piping Plovers earn their common name by their high, two-toned, organ-like call.

Wilcox's 20-year Piping Plover study found that of 979 marked chicks, the average age of 47 adults retrapped in subsequent years was 3.4 years. Since this figure does not account for first-year mortality, it may overestimate the average longevity of Piping Plovers. Wilcox estimated that 13% of females and 28% of males lived to be at least five years old, and the oldest "known age" male and female were eleven years old. Piping Plovers usually breed as one-year-olds.

Least Terns

Least Terns are Long Island's smallest tern, with slender bodies, long narrow wings, forked tails, and pointed bills. Their bodies are about 8.5 inches long, and they have a wingspan of about 20 inches. Like their relatives, Common and Roseate Terns, they have black caps, white underparts and tails, and gray backs when in breeding plumage. Least Terns can be distinguished from their counterparts by their smaller size, white foreheads, black-tipped yellow bills, and yellowish legs. Unlike Piping Plovers, which form relatively solitary pairs, Least Terns are usually observed in groups, either sitting on or near nests in the dunes, diving gracefully for fish in large foraging flocks, or mobbing colony intruders and predators. Least Terns have a wide variety of shrill, rasping calls and vocalizations, particularly when "attacking" intruders.

At least one wild Least Tern lived to be 17 years old; it was banded as a juvenile on Fire Island in 1940 and recovered on Fire Island in 1957 (Bull 1974). Most Least Terns breed as two-year-olds, although a large proportion may not breed until they are three years old.

Roseate Terns

Roseate Terns resemble Least Terns, with slim bodies, long narrow wings, forked tails, and pointed bills. They are significantly larger than Least Terns, with body lengths of about 15 inches and wingspans of 30 inches. Roseates, too, have black caps, white underparts and tails, and gray backs, but they lack the white forehead of Least Terns and have longer, trailing tail feathers, reddish legs, and black bills with red bases. Their deep wingbeat is slower than that of Least or Common Terns, and they are seen far more rarely than these species. The Roseate's voice is distinctive: a prolonged, grating "kraak" for an alarm call, lower and louder than other terns' calls, and a soft, musical two-syllable call on the breeding grounds (Bent 1921). On or near Long Island, Roseates are invariably seen with Common Terns, sitting on or near nests or hovering and diving for fish in foraging flocks.

Longevity data on Roseate Terns reports recapture of adults at least seven years old, but the same study concluded that year-to-year survival of Roseate Terns is lower than that of many other marine birds (Spendelow and Nichols 1989). Roseate Terns do not breed during their first year and only occasionally breed as two-

year-olds. First-year birds remain in wintering areas, and non-breeding second-year birds disperse throughout the West Indies, with some returning to North America. Three-year-old birds generally return to breeding areas to nest.

Common Terns

Common Terns are very close to Roseate Terns in size, body build, and plumage, although their tails are shorter, their wing tips are darker, and their bills are bright reddish-orange, usually with varying amounts of black at the tip. Common Terns are generally seen on Long Island standing near or sitting on nests on dunes, dredge materials, or salt marshes, or foraging in large, voracious flocks. Their call is a harsh, two-syllable "kee-urr."

A Common Tern originally banded as a nestling at Moriches Bay in 1939 was captured and released at Plymouth, Massachusetts, in 1953 - a 14-year old bird (Bull 1974). Like Roseate Terns, Common Terns typically do not breed until they are three years old.

3.3 Arrival on Long Island, Establishment of Territories, and Courtship and Pair Formation

Although their dates of arrival, courtship, and pair formation vary, this is the period when all four species are most sensitive to disruption. Almost any disturbance will cause the birds to abandon their sites, and assuming the birds are selectively choosing suitable, prefered nesting habitat, then disturbance at this stage may force them to seek refuge in less than optimal, and very possibly unsuitable, habitat. Sometimes entire tern colonies simply disappear after the disruption associated with a Memorial Day weekend. Re-nesting success after disturbance is very poor.

Piping Plovers

Adult plovers are the first of the four species to arrive on Long Island, usually appearing between mid-March and mid-April (Bull 1974). Males set up and defend breeding territories against other males, while attracting mates with elaborate courtship displays, including elliptical and figure-eight flights, vocalizations, and tossing shell fragments (Cairns 1982). Plovers frequently change mates between years, but rarely do so during the breeding season (Haig and Oring 1988). Unlike colonial terns, Piping Plovers are solitary nesters with breeding territories ranging in size from 0.1 to 1.7 acres and distances between Piping Plover nests of 90 to 210 feet (Cairns 1982, Burger 1987). Feeding territories are maintained and defended from other plovers throughout the breeding season and are usually adjacent to breeding territories. Adult male plovers tend to be faithful to previously used breeding sites regardless of previous reproductive success (Haig and Oring 1988). One-year-old birds, breeding for the first time, do not typically return to their own birthplaces to nest (Wilcox 1959).

Least Terns

Least Terns arrive on Long Island in early May, often returning to sites that have been used for several years (Burger 1984). From 1981 to 1987, the Long Island Colonial Waterbird and Piping Plover Survey has discovered less than ten new colony sites, while over the same period, approximately 25 colonies have suffered serious declines or have disappeared (McLean et al. 1987).

Males undertake courtship displays including aerial flights and eventually monogamous pairs are formed. Colonies range in size from 2 to 600 pairs and may be composed of a series of sub-colonies extending several hundred feet along a beach. There must be nearby feeding habitat (open water supporting small fish) for successful nesting. Least Tern colonies frequently include Piping Plover nests.

Roseate Terns

Roseate Terns generally appear at their Long Island breeding grounds in mid-May. Both sexes participate in courtship displays described by Bent (1921) as "stretching their necks upward and strutting about with drooped wings and elevated tails. . .. Finally the accepted suitor mounts his mate and stands squarely upon her back for a long time, with frequent interlocking of bills." On Long Island, Roseate Tern colonies are invariably within Common Tern colonies.

Common Terns

Common Terns return to Long Island breeding grounds in early May. Males begin courtship with strutting displays, necks stretched upward and bills pointing to the sky. Eventually, a male flies off, only to return with a small fish or sand eel, which he displays to a female. The female responds with "begging" behavior, an open bill and half-raised wings. Finally, the male "offers" the morsel to the female, which she may immediately accept and swallow, or she may accept and then pass back and forth with the male until finally swallowing it (Bent 1921). Eventually a monogamous pair is formed.

3.4 Nesting Habitats, Nests, Eggs, Incubation, and Hatching

Again, timing of nesting varies with each species, but once the first egg is laid, adults of all four species show strong tenacity to their nests, despite repeated disturbance. Intruders will cause adults to leave their nests temporarily, exposing eggs to predators and temperature extremes, which can reduce viability and hatching success. But once eggs are laid, nests are rarely abandoned altogether unless the site is destroyed by flooding, extreme human disturbance, or severe predation. Adults of all four species have been known to re-nest if early nesting attempts fail.

Piping Plovers nest earliest and receive the least disturbance from humans during this period. Many plover chicks, however, are newly hatched at the same time the beaches are sustaining their first major human use - Memorial Day weekend. Many tern nests have freshly laid eggs by this holiday weekend, while other terns are just getting started nesting. An uninformed mass of eager sun-seekers, with their pets and vehicles, can kill many plover chicks, destroy unhatched plover eggs and cause terns to abandon otherwise suitable nesting sites.

Piping Plovers, Least Terns, and Common Terns

Piping Plovers, Least Terns, and Common Terns use essentially the same nesting habitat: sand or sand/cobble beaches along ocean shores, bays, and inlets between the high tide line and area of dune formation. They usually nest at sites with little or no vegetation, although it is not uncommon to find plover nests at the seaward base of dunes where there are moderate amounts of beachgrass that shelter the nest and eggs from sun and weather. On Long Island, Least Terns were reported to use beaches with 5 to 25% vegetative cover, although sites with less than 20% cover were rarely used (Gochfeld 1983). Distance from and elevation above mean high water is an important factor in nest site selection. Gochfeld (1983) found that Least Terns on Long Island will avoid beaches that have less than 30 feet between the high water mark and the vegetated dunes, yet it is not uncommon to find a thriving colony situated in a low-lying area prone to flooding.

Both plovers and Least and Common Terns will nest on unvegetated dredged material if the surface is composed of sand, pebbles, and shell fragments with less than 10% clay and silt particles.

On Long Island, Common Tern colonies also occur on salt marsh islands and open elevated areas within an expanse of salt marsh. Birds tend to form linear colonies along the wrack line deposited

by winter storms, which usually keeps their nests above spring and summer tides. Use of salt marshes for nesting appears to be a recent phenomenon associated with loss of suitable beach habitat (Burger, in press).

Piping Plover nests are frequently found within Least Tern colonies. Least and Common Terns usually do not nest together, but it is not uncommon to find a few pairs of Least Terns in a Common Tern colony. Roseate Terns and Black Skimmers (*Rynchops niger*), although much rarer than Common Terns, are usually found in Common Tern colonies.

A Piping Plover nest is a shallow depression in the sand that is usually lined with shell fragments or small pebbles. Plovers almost invariably lay four eggs, one every other day, although incubation does not begin until after the last egg is laid. On Long Island, plover nests with eggs may be found from late April to late June. Incubation lasts about 27 to 32 days and is shared by both sexes. Reports of hatching success vary, ranging from a high of 91% (Wilcox 1959) to a low of 16% (MacIvor et al. 1985). All of the viable eggs in a given nest hatch at about the same time.

Least Tern nests consist of shallow depressions scraped in sand, constructed by the female. Egg-laying generally begins by the second week of May. On the average, two eggs are laid on consecutive days, with incubation beginning after the second egg. Incubation lasts about 21 days and is performed by both parents. Although pairs of Least Terns lay two eggs, they generally raise either one chick or fail altogether (Burger, in press).

Common Tern nests are built by the female and range from a scrape in the sand to a simple nest built of dried plant matter, typical of Common Tern nests in salt marshes. Clutches vary from 2 to 3 eggs, laid at 1 to 2 day intervals. Nests with eggs can be found by the middle of May on Long Island. Incubation lasts for approximately 21 days, and is shared by both parents.

Roseate Terns

Although Roseate Terns invariably breed in Common Tern colonies, Roseates show a preference for specific "micro-habitats" within the main colony, where they usually set up discrete sub-colonies. Successful Roseate colonies are almost always on islands; nesting attempts on the few sites on or attached to the mainland usually do not succeed because of predation and human disturbance.

There are two general categories of Roseate Tern colony "micro-habitats" (Nisbet 1981). The first, characteristic of Long Island, are sandy islands, barrier islands, or barrier beaches vegetated with beachgrass and herbaceous plants such as seaside goldenrod, beach-pea, and dusty-miller. The second category, represented in this region only by Great Gull Island, are rocky or clay islands with a thin layer of soil and usually thickly vegetated with grass and herbaceous plants, except on rocky outcrops or sandy edges. Roseate Terns have been observed nesting in salt marshes, but with little success (Buckley & Buckley 1981). Optimal habitat should have about 80% cover of herbaceous plants about 30 inches tall. These conditions are not frequently encountered, at either functioning colonies or potential sites.

Roseate Tern nest sites are generally selected only one to four days before egg-laying. Roseates require cover for nesting and locate their simple nests beneath or beside clumps of grass or various species of herbaceous plants or other objects that provide shelter. They will also nest under and among rocks, driftwood, and other beach debris. Nest density within a sub-colony may be as high as four nests per square yard, with nests commonly spaced 10 to 20 inches apart. The nest itself begins as a bare scrape in the ground. Nests with eggs may be found by late May. Within a given sub-colony, all females tend to lay within a week.

Once an egg is laid, an exclusive territory about three feet in

diameter, centered around the nest, is established and vigorously defended. Roseates generally lay 1 to 2 eggs at 2 to 3 day intervals. Incubation begins with the first egg and is carried out by both sexes. During incubation, the sitting bird gradually constructs a simple nest from pieces of vegetation and other available material. Incubation lasts for approximately 23 days, but can vary from 21 to 27 days.

3.5 Care and Feeding of Chicks

Piping Plovers

Piping Plover eggs generally begin hatching on Long Island about late May, although the actual date depends on the onset of egg-laying and incubation. Young are precocial (their eyes are open, they have downy feathers, and they are capable of locomotion within hours of hatching) and will remain in the nest only until their down has dried. They are well-camouflaged and highly mobile.

Chicks feed independently almost immediately, led by parents to the water's edge. Adults and chicks feed on small crustaceans, molluscs, marine worms, insects, insect larvae, and other invertebrates. They forage in the intertidal zone of bays and inlets and on oceanfront sand beaches, mud flats, and tidal wrack deposits. Most feeding occurs at low or falling tides during the daytime.

If disturbed, flightless chicks crouch and remain motionless, becoming almost indistinguishable from their surroundings. Frequently, they intersperse short runs with this motionless crouch. Unfledged young (those that do not yet have the ability to fly) are usually present from late May to late July. Although parents remain with chicks until they have the ability to fly, young are very vulnerable to disturbance during the first three weeks of life, particularly if feeding is disrupted. Chicks must be allowed to spend the major part of the day during low tide feeding, to obtain the energy necessary to increase in size, grow feathers, escape predators, and develop the ability to fly and then migrate south. Frequent disturbance during feeding probably results in increased mortality of chicks (Fleming 1984).

Many plover chicks are newly hatched about Memorial Day weekend, and about an equal number are just shy of fledging by the Fourth of July weekend. Since chicks feed at the water's edge, usually at low tide, they are extremely vulnerable to disturbance by sunbathers and swimmers, walkers, pets, and vehicles. When crouched motionlessly in a tire track in the sand, chicks are virtually impossible to see, making them equally impossible to avoid.

Plover chicks become able to fly ("fledging") 28 to 35 days after hatching, usually beginning in early July. Number of young per pair that survive to fledging are highly variable. The average is generally between one and two, but often a local breeding population of plovers will raise an average of less than one per pair. After fledging, family groups separate, and adults and young begin congregating on feeding grounds outside territorial boundaries.

Least, Roseate, and Common Terns

Behavior of chicks of all three tern species is very similar, as is their parents' feeding care. Nests have similar numbers of eggs (usually two) and most eggs hatch in mid- to late June. Chicks have downy feathers and their eyes are open, but unlike plover chicks, tern chicks remain in their nests for about three days after hatching and are fed by their parents until several weeks after fledging. After leaving nests, tern chicks are highly mobile, ranging throughout their colonies. Adults apparently are able to identify their own young through sight and smell, and are believed to feed only their own offspring. Adults share responsibilities for

feeding chicks and protecting young from temperature extremes and inclement weather. Adults bring small (2-4 inches) fish of several species, which are swallowed headfirst by chicks. Downy chicks "beg" for their meals from parents by opening their bills; older chicks, including those already fledged, display more elaborate begging behavior including opening their bills, half-opening their wings, crying out, and "dancing" in place. Parents may feed chicks on land, in water, or, for fledged young, in mid-air.

When disturbed, chicks flee to hide behind clumps of vegetation or crouch motionlessly against the sand. If at the water's edge, they may take to the water, being competent swimmers almost immediately upon leaving their nests. Chicks seek refuge from inclement weather and the mid-day sun in vegetation, although adults frequently provide this protection directly.

Least Terns have the shortest time from hatching to fledging, about 20 days. Common Terns fledge about 28 days after hatching, and Roseates fledge 24 to 28 days after hatching. Variations in fledging time depend on conditions during a particular breeding season. Plentiful forage fish, a high proportion of clear sunny days, and little disturbance result in earlier fledging.

Most chicks fledge by late July. Fledged young are dependent on parents for food for several more weeks. Roseate adults have even been observed feeding young on their wintering grounds. Fledged chicks and adults may remain at or near their colonies for one or two weeks after fledging, after which they congregate on suitable beaches with other adults and young prior to migration.

3.6 Responses of Adults to Disturbance

Piping Plovers

Adult Piping Plovers respond to disturbance in their territories by exhibiting an array of distraction behaviors. They may be best known by the general public for their "broken wing" displays to lure potential predators away from nests and eggs. Other displays include squatting, false brooding, and running. Displays are most frequent and intense near hatching time and when chicks are very young. Incubating and brooding birds, while unlikely to entirely abandon an active nest, are sensitive to human approach. The average distance at which a bird will leave its nest when approached is 150 feet (Cairns 1977). Distraction displays intensify as the intruder moves closer to the nest. Plovers generally exhibit more intense displays when approached by humans than by other potential predators or non-predatory species (Flemming 1984).

Burger (1987) suggests that the anti-predator behavior of Least Terns, coupled with their concentrated numbers, may reduce the threat of predation to nesting plovers, resulting in higher reproductive success for plovers nesting within Least Tern colonies than for those nesting outside of tern colonies.

Least, Roseate, and Common Terns

A recent study (Erwin 1989) analyzed responses of several seabird species to human intrusion. Results showed that Common Terns and Black Skimmers flush from colonies at greater distances (260-600 feet) than do Least Terns (210 feet). Initially, all adults fly up from their nests, circle, and return to the colony. As intruders close in, birds leave nests for the duration of the disturbance. Often, Least and Common Tern adults "mob" intruders by calling loudly, diving at and, frequently, defecating on them. The most aggressive individuals are those whose nests are most closely

approached, but all colony members will join in if a threat is perceived. Common Terns are generally more aggressive and more effective at driving predators away than other beach-nesting species. In Least Tern colonies, mobbing responses have been elicited at a range of 30 to 225 feet.

Roseate Terns readily leave their eggs and young when threatened or disturbed. They are particularly sensitive to human disturbance, and leave their nests sooner and remain in the air longer than neighboring Common Terns. They attack airborne avian predators, but when approached by mammals or birds on the ground, they circle above the invader, issuing alarm calls. In contrast, Common Terns carry out vigorous attacks on terrestrial predators, and there may be a real advantage for Roseates to form mixed colonies with this species.

Least Terns appear to have adopted a different strategy for reducing losses to predation than Common and Roseate Terns. Least Tern colonies are more numerous and have fewer pairs of birds, while Common and Roseate Terns nest in a few, very large colonies. Since there are more Least Tern colonies, chances that predators will discover a large percentage of them is reduced, although the small numbers of nests in each colony may be completely wiped out by predators if the colony is discovered. The few, large Common and Roseate Tern colonies may be easier for predators to find, but aggressive defense attacks and lots of individual nests and birds may reduce chances that predators will wipe out entire colonies.

Mobbing responses are focused on daytime threats such as gulls, crows, domestic animals, and humans. When confronted with nocturnal predators, terns leave their nests and colonies altogether. Roseate Terns may leave their nests and young for up to seven hours each night in the presence of nocturnal predators. However, they are more apt to return during the night than Common Terns and commonly suffer higher adult mortality to predators. Nocturnal predation remains the principal cause of egg loss and mortality of young and adults.

Principal predators are rats (*Rattus norvegicus*), Greater Black-backed Gulls (*Larus marinus*), Great Horned Owls (*Bubo virginianus*), and Black-crowned Night Herons (*Nycticorax nycticorax*).

3.7 Foraging Habitats and Strategies

Piping Plovers

As mentioned earlier, adults and young plovers feed in the intertidal beach zone on small crustaceans, molluscs, marine worms, insects and insect larvae, and other invertebrates. Most feeding occurs during the daytime at low or receding tides. Cairns (1977) reported that apparently random pecks were interspersed with short runs by plovers foraging on lagoon sand flats, but birds switched techniques on more active ocean beaches, using foot trembling to locate food before pecking.

Least, Roseate, and Common Terns

Least, Roseate, and Common Terns all feed on small (2-4 inches) fish of several species, although sand lance is frequently cited as their primary prey (Bent 1921). These fish swim in schools of many hundred individuals and are favored prey for bluefish (*Pomatomus saltatrix*), which chase schools of the smaller fish to the water's surface. Commercial fishermen frequently use flocks of foraging terns as guides to bluefish.

Although their food sources are essentially the same, there are differences in the ways each tern species catches its prey and the habitat in which it forages. Least Terns forage in freshwater and salt ponds, estuaries, bays, and the ocean. They hover and dive after their prey from heights of 3 to 30 feet. They are also known

to skim the water's surface for food. Least Terns will fly substantial distances from their colonies to feed at consistently productive sites.

Roseate Terns catch fish by diving deeply from greater heights than other species of medium-sized terns. Foraging occurs in clear waters of bays, inlets, tidal rips, and open waters within about 1.25 miles of shore. Roseate Terns use three foraging methods. Dispersed feeding takes place at favored feeding sites where schools of prey fish are widely distributed; productive sites include submerged sandbars and tidal rips that are used habitually within and between breeding seasons. Roseate Terns occasionally join dense flocks of Common Terns when schools of fish are being driven to the surface by large predatory fish, such as bluefish. They are also known to hover over colonies and rob other species of terns arriving with fish.

Common Terns capture prey by making shallow dives. Foraging sites are essentially the same as those of Roseate Terns, but Common Terns are not limited to areas with clear waters. They feed primarily on schools of fish driven to the surface by bluefish. Large flocks gather near feeding bluefish, shifting position as prey fish reach the surface. Common Terns and bluefish depend on the same food resource, and bluefish appear to be the better competitors for this food source. Bluefish appear to control prey abundance and availability, and their population levels may dictate the degree of Common Tern reproductive success within a given breeding season. Safina and Burger (1985) suggest that population movements and reproductive activities of Common Terns are linked to prey abundance.

3.8 Migration and Winter Range Habitats

Piping Plovers

Piping Plovers depart Long Island beaches by the end of August or early September (Bull 1974). Most of the Atlantic coast population winters along the Atlantic coast from North Carolina to Florida. Recent surveys suggest that major wintering areas include the southern coasts of North Carolina and Georgia and the Lower Florida Keys. The Great Lakes and Northern Great Plains populations winter along the Gulf of Mexico coast from Florida to Mexico. Studies in Texas have shown that wintering plovers favor sheltered sandflats adjacent to open beaches, rather than the beaches themselves (Haig & Oring 1985). Winter habitat selection along the Atlantic coast is not well known.

Least, Roseate, and Common Terns

All three tern species leave Long Island in early September, although Common Tern stragglers may remain until early October (Bull 1974). Least Terns head for their wintering grounds along the coast of northern South America from Venezuela to Brazil. Roseate Terns migrate south through the West Indies, arriving at wintering grounds on the northern coast of South America from the Pacific coast of Colombia to eastern Brazil by November. Roseate Terns banded on Cedar Beach and Great Gull Island have been recovered in Puerto Rico, the Dominican Republic, and off the Pacific coast of Colombia (Bull 1974).

The primary winter range of Common Terns encompasses both coasts of South America, extending along the Atlantic coast to southern Argentina and along the Pacific coast south to Peru. Smaller numbers winter in southern Florida and California. Most Long Island Common Terns probably winter in Trinidad or Guyana, but one banded bird was found over 6500 miles away in Chile (Bull 1974).

4.0 ADVERSE IMPACT ON BEACH-NESTING SHOREBIRDS: natural and unnatural limits on habitat values.

Populations of Long Island's beach-nesting birds have been declining since the 1950's. This decline can be attributed to several factors. One cause has been reduction in availability of suitable nesting habitat; both the numbers and quality of sites have been drastically reduced. At the remaining sites, intense human disturbance makes it very difficult for birds to breed successfully. Increased coastal development and associated activities of large numbers of people are the principal forces contributing to the decline of this region's biological legacy.

4.1 Coastal Land Development

Development of waterfront property on Long Island has continued unabated for over 30 years with little concern for quality of coastal habitats for wildlife. The result has been the disappearance of large areas of suitable habitat for nesting terns and plovers. Coastal development began with building of second homes and accelerated with expansion of suburban communities. Even the underlying coastal landforms have been modified to "protect" beachfront communities from climatic and geological processes. Frequently, groins and jetties constructed to "stabilize" eroding coastal areas have also significantly contributed to habitat alteration.

In addition to loss of habitat, several secondary impacts are associated with residential development of coasts. Because people live near the beach, they walk on it more frequently, disturbing territorial and nesting birds. Children often think collection or destruction of eggs or chasing chicks is fun. People bring cats and dogs to their beach houses; unleashed pets are a great danger to beach-nesting birds. Dogs and cats have destroyed numerous tern colonies and plover nests. Dogs have been known to chase and kill most of a colony's chicks, breaking eggs and causing catastrophic disruption in the process. Cats often hunt at night and are very efficient at decimating a colony.

4.2 Recreational Uses

Rapid growth of human populations on Long Island has resulted in a tremendous rise in recreational use of ocean and bay beaches. Tern colonies and Piping Plover nests are particularly sensitive to this use. Increased pedestrian, swimming, and sunbathing activities and use of off-road vehicles (ORVs) are the principal factors associated with recreational use of beaches. These activities reach their heights on Memorial Day and Fourth of July holiday weekends, periods critical for successful plover and tern reproduction.

Off-road Vehicles (ORVs)

Off-road vehicles include four-wheel-drive cars and trucks, small three- and four-wheel-drive all-terrain vehicles, dirt bikes, motorcycles, and occasionally, "mountain" bicycles. A variety of people use ORVs on the beach day and night, including commercial fishermen, law enforcement personnel, bathers, and joy-riders. Operators often get on the beach at unauthorized dune cross-overs and frequently drive on all portions of the beach, posing a threat to nesting, foraging, and roosting birds. The small size and efficient camouflage of tern and plover nests, eggs, and chicks make them essentially invisible to ORV drivers and occupants. Young plovers feed at the water's edge and young terns tend to congregate on the lower beach waiting to be fed by returning adults, often placing them in the direct paths of fast-moving vehicles. Heavy beach traffic during the breeding season frequently results in colony and nest abandonment.

Pedestrians, Swimmers, Sunbathers, and Picnickers

Presence of pedestrians in proximity to colonies and nest sites also poses substantial problems. Birds in the process of territory establishment and pair-bonding are very sensitive to disturbance. Bathers and picnickers who are unaware of nesting birds will unintentionally approach and linger too close, causing adults to leave their nests, exposing eggs and young to temperature extremes (overheating due to direct sunshine on hot days and chilling on cooler, overcast days) that commonly lead to death by exposure. Eggs and chicks also become vulnerable to avian predators. Frequent disturbance of this sort often results in site abandonment. When people actually enter colonies, further damage occurs. Eggs and chicks may be crushed under foot, and mobile young may be separated from parents and die of starvation or injury by other adults.

Regular, daytime use of the beach just above the water line by people and/or vehicles prevents plover chicks from feeding, and may be a major factor in the lack of reproductive success of Long Island's Piping Plovers.

4.3 Dredging Operations

Dredging operations are conducted to maintain navigable waterways, harbors, and marinas and to restore recreational beaches that have eroded. Dredging permits are issued through a process that involves the Army Corps of Engineers, NYSDEC, NYSDOS, Nassau or Suffolk County, townships, and villages. Objectives and environmental impacts are considered in each case. Approval of permits often takes six months and is initiated long before beach-nesting birds return in the spring. Selection of a particular kind of dredge depends on the site and the disposal method. Material to be dredged, site accessibility, hydrology, and weather conditions dictate the choice. The two basic types of equipment available are mechanical and hydraulic dredges.

Mechanical Dredges

Mechanical dredges are designed to operate in proximity to docks, bulkheads, and other structures. Examples include clamshell, dipper/backhoe, and bucket dredges. They usually operate with separate material transport and disposal vessels. The principal advantage of mechanical equipment is the high sediment-to-water ratio of material to be relocated, which permits disposal in small containment areas or transport over long distances.

Hydraulic Dredges

Hydraulic dredges use centrifugal pumps to transport material. Water mixes with sediments to form a slurry, which is pumped through a pipeline to the disposal area. Examples of this equipment include cutterhead, dustpan, sidecaster, and hopper dredges. Depending on the type of hydraulic dredge, sediment can be deposited on an upland site or in open water.

Dredging on Long Island is usually conducted with hydraulic equipment, using upland disposal areas located close to the dredge site. Habitats used by breeding terns and plovers are frequently situated adjacent to channels and basins that require dredging since these are the areas of accreting sand and sediments. This proximity often means that birds nest in areas selected as deposition sites.

Material Deposition and Placement of Pipelines

Placement of dredged materials on or near active nest sites can cause severe disruption or failure of nesting. Consequences include interruption of territory establishment, destruction of eggs and young, and abandonment of nest sites or colonies. Deposition of unsuitable silty material on currently inactive but previously used or potential breeding sites may result in damage to or loss of

suitable habitat. Open water disposal may impact prey fish populations through temporary changes in the marine environment.

Hydraulic dredging requires placement of pipelines between dredges and disposal areas. Pipelines can interfere with nesting, and in the event of equipment failure such as a leaking pipe, destroy a colony or nest site. It is possible, however, through careful scheduling of work, placement of pipelines, and selection of deposition sites, that dredging can occur with little or no impact on plovers and terns. Furthermore, dredged material can be used to improve unsuitable nesting habitat and create new habitat.

4.4 Environmental Degradation and Predation

Environmental degradation and predation are included as a single topic here because of the unfortunate relationship that these two factors have with respect to the welfare of beach-nesting shorebirds. These species exist in a tenuous balance with their predators. Often a change in or near the nesting habitat through pollution, physical alteration, or introduction of residential housing may be enough to tilt this balance in favor of predators, often to the extent that an entire colony's nesting effort may be met with no success at all.

Water Pollution

Toxic substances and concentrated nutrients in marine sediments can have immediate impacts if these sediments are part of dredged material deposited at colonies and nest sites. Intertidal sand and mud flats become devoid of fauna if levels of pollutants are too high. Pollution of open waters can lead to declining fish populations, reducing food availability for foraging terns. Birds can be contaminated by feeding on tainted fish, depressing their productivity. Input of nutrient-rich effluents from sewage treatment systems and agriculture can lead to dramatic changes in marine ecosystems. Recent algal blooms that have plagued Peconic Bay and adjacent waters may be the result of this process. The capacity of Long Island's marine and coastal environments to support viable populations of breeding birds depends on the quality of its ecosystems.

Residential Garbage and Beach Litter

Degradation of nesting habitats and foraging areas is a growing problem. Garbage from beachside homes is a source of food for predators, artificially increasing their numbers near such developments. Refuse left on beaches by recreational users attracts wild predators such as gulls, crows (*Corvus brachyrhynchos*), raccoons (*Procyon lotor*), and red foxes (*Vulpes vulpes*), as well as domestic pets and feral cats and dogs. Presence of these predators on beaches increases disturbance of adult birds and the chances for destruction of eggs and chick mortality. In addition, adult birds have been known to become entangled in the plastic packaging of six-pack beverages and monofilament fishing line and hooks, causing injuries, reducing abilities to forage, increasing vulnerability to predators, and causing mortality.

Predation is a major limiting factor in success of beach-nesting birds. A diverse array of avian and mammalian predators, consisting of both native and non-native species, feed on eggs, young, and occasionally adults. Native mammals include gray squirrels (*Sciurus carolinensis*), skunks(*Spilogale putorius*), raccoons, opossums (*Didelphis virginiana*), red foxes, and weasels. Non-native mammals consist of domestic and feral animals, and Norway and black (*Rattus rattus*) rats. Native birds include Black-crowned Night-Herons, Crows, Ruddy Turnstones (*Arenaria interpres*), Great Horned Owls, and Great Black-backed and Herring (*Larus argentatus*) Gulls. The only non-native bird species that is a potential threat is the Starling (*Sturnus vulgaris*).

A number of these species are able to exploit food sources associated with human activity (garbage) and have increased their numbers over the years as human development has expanded. Increased numbers of predators cause greater mortality and reduce reproductive success.

4.5 Vegetation Succession

Vegetation succession is primarily a problem on dredge material disposal sites. These sites are ideal for colonization by a variety of weedy plant species, which eventually overgrow the site, rendering it unsuitable for nesting plovers and Least Terns. Roseate and Common Terns may still nest in denser vegetation, but eventually the entire site becomes unsuitable. Because of overall habitat loss, birds have fewer and fewer alternate areas to move to when some sites become overgrown, resulting in decreased reproductive success.

4.6 Flooding

Natural beach habitats are constantly changing, as some get too vegetated others are opened up by wind and wave action. Low-lying beaches that appear suitable for nesting are subject to flooding during storms and extremely high tides. If this occurs at an active colony, eggs and young are destroyed and the site is usually abandoned. As mentioned above, overall habitat loss has reduced alternate sites available to birds from a colony destroyed by flooding, further decreasing reproductive success.

5.0 REDUCING ADVERSE IMPACTS: Managing to enhance habitat values and nesting success

Opportunities exist to prevent or reduce impacts of human activities on breeding populations of beach-nesting birds. Cooperation among diverse private and public organizations and individuals is necessary to take advantage of these opportunities. In situations where conflict arises, reasonable solutions can often be achieved simply through development of an awareness of the resource and its vulnerability. Management approaches described in this plan largely reflect the results of previous cooperative efforts which have led to the practices now in use by several agencies, organizations, and individuals concerned about protecting Long Island's coastal areas.

5.1 Coastal Land Development

Loss of shorebird habitat to residential development and use is the most direct, obvious, and irreversible factor threatening Long Island's plovers and terns. Although most of the nesting habitat for these birds is located on public land, the permanance of the adverse impact that residential development can have on habitats located on private land, or even adjacent to private lands, makes residential development one of the more important factors threatening the welfare of these species. Coastal development is also a complicated issue to address, requiring cooperation and coordination at every governmental level and broad support from the public.

A lesson that can be learned from beach-nesting shorebirds is how difficult and unpredictable life can be in a dynamic environment. Barrier beaches and dunes by their very nature are unstable and basically incompatible with permanent structures such as inlet jetties or houses. Permanaent structures have been maintained with varying degrees of success; the point is that substantial economic and physical commitment has been required to preserve these structures in the face of natural change.

Residential development in particular comes at a large cost to both taxpayers and those seeking to live on the barrier beaches. This cost includes federal flood insurance support; construction and maintenance of roads, bridges, sewers, telephone lines, and

utilities in areas where they are certain to sustain damage from ocean storms and hurricanes and where they only benefit and service waterfront landowners; emergency relief services to coastal landowners [illegible] homes are damaged or destroyed by hurricanes and storms; and [illegible]truction of extremely expensive groins, bulkheads, and other struc[illegible]s which, at best, provide temporary protection for coastal developments.

Add to these public and private costs the biological costs that species pay. Beach-nesting shorebirds have declined over the last thirty years; during the same time period, second homes and permanant residences on the coast have flourished. It has not been demonstrated that these two uses - residential use by humans and beach nesting by shorebirds - can coexist. At some point, an active decision may be needed to determine where one use prevails. If the decision is made that shorebird habitat is to be preserved and protected, then the following steps should be taken.

A **first step** toward protecting existing habitat is to restrict new coastal construction. Certain undeveloped barrier beaches should be preserved in natural condition based on habitat resource values. Plans for appropriate acquisition of private lands should be developed, and public agencies should dedicate these lands as natural beaches for wildlife habitat.

A **second step** is to restore value to suitable habitat areas by restricting rebuilding of existing structures damaged by erosion or storms. In December 1989, the Long Island Regional Planning Board proposed that buildings in vulnerable areas sustaining damage costing more than half their replacement value should be razed followed by public acquisition of the property. Although controversial, this recommendation is being considered throughout the Atlantic coast, particularly in light of the damage to the South Carolina coast by Hurricane Hugo in September 1989. Restricting rebuilding is the only certain way to reverse habitat loss that has proven so detrimental to plovers, terns, and other coastal species.

A **third step** towards restoring natural beach environments would be to gradually phase out federal flood insurance coverage for existing coastal properties and cease issuance of new policies. Availability of inexpensive coverage has only encouraged construction in vulnerable areas. Withdrawal of coverage won't discourage all coastal development; many individuals are wealthy enough to afford private insurance. But, at least the public won't be involved in the business of financing construction and reconstruction of beachfront houses.

A **fourth step** in restoring habitat value is to consider removal of shoreline structures such as groins and bulkheads in instances where the value of these structures is questionable. Structural approaches may exacerbate the effects of erosion or may transfer the effects of erosion to adjacent areas. Even when gains in the immediate project area are realized, losses to erosion often appear to have accelerated in downdrift areas. In general, it has not been prudent from a habitat value perspective to stablize one section of the coast at the cost of another section. The test that should be met for existing or proposed structural approaches is whether off-site effects can be observed or expected. Too often, the only benefits considered are those in the immediate project area, with disastrous impacts on adjacent areas being ignored.

A **fifth step** is to determine where private property ends and public property begins at important nesting areas sandwiched between the ocean and an almost solid row of beachfront homes. Debates about who owns beaches and dunes that shorebirds use must be resolved. Private landowners generally claim ownership of all the dunes right down to the water and occasionally prevent plover and tern stewards from fencing and posting nest sites and colonies. Landowners feel fencing interferes with their use of the beach and views of the ocean. New York State, however, generally claims ownership up to the mean high tide line, which is based on a "floating" seven-year average. At sites where the federal, state, and/or local governments have undertaken public

works projects or actively nourished beaches or filled underwater lands (at the taxpayers' expense), the state claims ownership of all newly created land and accreted land resulting from the public works projects. For example, at some sites on Southampton's Dune Road, private property doesn't reach seaward of toes of the first vegetated dunes, although most landowners are unaware of this. This is particularly significant because the strip between the high tide line and the vegetated dunes is usually the area the birds use for nesting. Appropriate legal research should be done; letters and educational brochures should be developed and distributed to all affected landowners. Public information meetings may also be appropriate vehicles for presenting this kind of information to homeowners associations. Adequate educational and enforcement efforts should follow throughout the breeding season.

5.2 Recreational Use

In comparison to residential development and use, adverse impacts arising from recreational use in or near beach-nesting shorebird habitat is less obvious and reversible. Adverse impacts due to conflicting recreational use probably constitute the single greatest threat to the welfare of these species. This conclusion is based on two observations: first, most of the nesting habitat is in public, not private, ownership; and second, both birds and people concentrate their activities in the same, limited places.

Chronic effects of recreational beach use during the breeding season can be seen at virtually every site on Long Island. The double jeopardy resulting from huge Memorial Day weekend crowds followed by even larger Fourth of July weekend crowds accompanied by after-dark fireworks displays is devastating to many colonies. Permits for all public and private fireworks displays should be reviewed for their impacts on plovers and terns. Those proposed in proximity to active nesting sites should be relocated. Sponsors of all displays should have adequate crowd and vehicle control capabilities to prevent damage to tern colonies and plover nests and chicks. And, all litter should be cleaned up immediately.

Throughout the rest of the summer, most areas can sustain some levels of recreational use without necessarily disturbing nesting birds and their young. In order for this to occur, management techniques need to be employed that effectively achieve separation of colonies and nest sites from human activities. These techniques direct human activities to less sensitive portions of the beach and dune environment during the months that are critical to the reproductive success of plovers and terns.

Separating Recreational Users from Nesting Birds

Timely assessment of site use by birds is the necessary prerequisite to establishing a sound protection program. Once active sites are identified, marking of perimeters and posting with educational signs can be done by trained volunteers, landowners, municipal employees, or professional stewards. Posting and marking must be completed before Memorial Day weekend, when the first major influx of beach visitors takes place. The remainder of the breeding season may be used for monitoring nesting success, protection of the nesting site, and public education.

Timing of colony and nest site establishment is variable, depending on the particular species and weather. Piping Plovers usually have nests by late April or early May. Terns usually establish colonies by late May. An unusually cold or wet spring can delay nesting territory establishment.

Several colony sites have relatively consistent historical use or clear topographical boundaries and may be marked before spring arrival of birds. Exact locations of most sites however, vary from year to year, but generally by no more than one-half mile. This seasonal variation makes it difficult to mark the colony boundaries until birds arrive and establish territories. In many cases, colonies

expand beyond the previous year's boundary line, requiring one or more adjustments to physical markers. Appropriate marking of the colony can be effectively used to create restricted corridors for vehicular and pedestrian movement. Boundary markers and signs may be rem[illegible]soon as birds leave a site, whether as a result of mid-season abandon[illegible]nt or completion of the breeding season.

Public Education

A prerequisite for a successful protection program is education. People have to be shown how they can share beaches with nesting birds - often it is only lack of knowledge that is the problem. Few people are interested in harming these birds out of malice, and those who are given the reasoning behind habitat and species conservation often become sympathetic supporters. Indeed, the most valuable resource in achieving protection of these habitats, are local citizens who take an interest in these birds and voluntarily watch out for their welfare. The point made here is that the public must be informed of the importance of management activities for coastal habitats and species. State and federal agencies publish informative leaflets on the biology and vulnerability of beach-nesting species and their habitats. Formal programs to disseminate these materials to the beach-using population could be created. Outreach through schools and the media should be considered as a means of educating large numbers of people. Ongoing education will increase awareness of the presence and vulnerability of nesting birds and enhance the public's willingness to participate in protection of their habitat.

Management of Adverse Impacts from Recreational Use: A Checklist of Minimum Requirements for Protection of Colonies and Nest Sites

Each season, colonies and nesting sites on beaches that also receive recreational use have to be identified and marked to direct recreational use away from sensitive habitat. Marking the site's boundary can be accomplished by a variety of methods, ranging from light string lines to heavy snow fencing. The method used depends on the type of recreational use the beach receives. This section describes the process used each season by volunteers and professionals throughout Long Island in a ritual that has become as commonplace as the return of the birds to the beaches.

1. **Identify active breeding areas** through observation of courting or nesting birds.

2. **Determine primary and buffer zone boundaries** of the colony or nest site.
   - **a.** Primary boundary for solitary Piping Plovers is the nest itself.
   - **b.** Primary boundary for a tern colony is a line that includes all nests on the periphery of the colony.
   - **c.** Buffer zone boundary is 200-800 feet from the primary boundary, depending on site topography, and should be maximized wherever possible.

3. **Select appropriate fencing** and erect it along the buffer zone boundary line.
   - **a.** String fencing should be used at sites where a *visual or symbolic barrier* will be sufficient to deter vehicular and pedestrian disturbance.
     - Use nylon "Mason's Twine" or a similar product. It is durable, inexpensive, and reusable.
     - Attach a single string to five-foot steel fence posts spaced not more than 50 feet apart along the buffer zone boundary line.
     - Tie pieces of highly visible surveyor's flagging every ten feet along the string.
     - At sites with vehicular and/or heavy pedestrian use, attach *two* strands of string two feet apart to posts *or* set up an inner and outer fence line with

the inner fence at least 200 feet from the primary boundary.

- Place reflective tape or fluorescent surveyor's flagging on signs and posts at sites that experience night-time vehicular use.

b. Snow fencing should be used at sites that require *physical barriers* to prevent disturbance *or* at sites where this type of fencing can effectively seal off the entire site from virtually all forms of disturbance.

- Use untreated wooden slat snow fencing.
- Use wire to attach snow fence to five-foot steel fence posts spaced 6-8 feet apart along the buffer zone boundary.
- Place reflective tape or fluorescent surveyor's flagging on fencing or posts at sites that experience night-time vehicular use.
- Colonies or nest sites located on spits or peninsulas can be completely closed off by running fencing across the spit or peninsula from water to water. Signs are still required along the water's edge to prevent landing or intrusion by boaters. Elevated dredge disposal sites can be completely enclosed by snow fence.

4. Install plastic or nylon signs bolted to steel fence posts (large format signs can be mounted on 4 x 4-inch wooden posts) at appropriate points around colonies or nest sites.

a. *Boundary or restricted signs* are usually small (12 x 12-inch) and tersely worded, stating that access is restricted because of beach-nesting birds and citing laws and regulations that govern the restrictions. These signs are designed to meet legal posting requirements in order to be able to take legal action against trespassers and must be erected at intervals of not more than 100 feet. Other restricted signs make simple statements in large, bold lettering ("NO BOAT LANDING" or "KEEP OUT") and are designed to allow people to read them without having to come all the way up to the boundary before being able to discern their message. These signs are variable in size.

b. *Informational or educational signs* are usually large (2 x 3 feet) and explain in greater detail the biology of the protected species and the dangers of disturbance. These signs are erected at places where they will receive the greatest amount of attention from recreational beach-users (access paths from parking areas, ends of elongate colonies, along boundary fences or 20-30 feet outside fences at points closest to areas used by people).

c. *Boundary or restricted signs* should be interspersed with informational or educational signs, and there should be some kind of sign every 25-75 feet along colony or nest site boundaries. Permanent signs should be attached to year-round snow fence, explaining the objectives and timing of beach access restrictions.

d. *Nuisance signs* indicate presence of hazardous plants (poison ivy) or pests (ticks) and are effective in reducing intrusion by pedestrians. These signs should only be erected when such a nuisance actually exists.

e. Signs should include the names and/or logos of organizations and government entities that are active in protection efforts.

f. Most fencing and signs should be removed as soon as birds leave a site, whether as a result of mid-season abandonment or completion of the breeding season. In some cases, however, it is a beneficial educational opportunity to leave snow fences up throughout the year, but replace breeding season signs with more appropriate signs, explaining why the fence is there and timing of access restrictions.

5.3 Dredging Operations

The major conflict between dredging operations and nesting birds is one of timing; because of favorable weather conditions and the need to provide navigational access during the recreational boating season, dredge operators usually work during the nesting period for plovers and terns on Long Island (March 15 - August 15). Some dredging does, however, occur at times outside this time period. In these instances, the concern is over modification of existing habitat or creation of new habitat by the placement of dredged materials. In either case, measures can be taken to eliminate or reduce impacts of dredging operations on nesting birds.

Permits from the US Army Corps of Engineers, NYS Department of Environmental Conservation (DEC), and Suffolk or Nassau Counties are required for all dredging operations. NYS Department of State's Division of Coastal Resources and Waterfront Revitalization reviews the federal and state permits for consistency with coastal management policies and, in the case of federal permits, has the statutory authority to prevent the issuance of permits that would result in adverse impacts to designated habitats. Local municipalities with approved waterfront revitalization plans also gain review authority over state actions, and have statutory authority to object to issuance of state permits which may led to adverse impacts on the habitats.

When a permit application is submitted, it is first necessary to determine nesting habitat for birds is nearby and whether records of actual use by birds exist. Written information requests from applicants for permits can be directed to the DEC's Information Services in Latham, NY (see Appendix 10.1 for address). The "Site Narratives" section of this report provides information on relevant aspects of all recently active tern colonies and plover nest sites. Additionally, in the permit review process, either state or federal reviewers may designate a qualified biologist (a member of their own staff or an independent individual) to visit the site to confirm or update existing information. Since this site visit may have to occur before birds normally return to breed, the assessing biologist must be aware of historical use of the site by birds and the nesting habitat preferences of all species of concern. This guide provides an excellent starting point for this type of review. The biologist makes recommendations on timing of dredging, placement of pipelines, and dredge disposal sites. Agency staff review these recommendations and impose appropriate restrictions on the permit before approving the operation.

Guidelines for Dredging Operations Scheduled Outside the Breeding Season (August 15 - March 15) or During the Breeding Season at Inactive Sites

The primary issue of concern in these instances is dredged material disposal. Biologists can make recommendations for habitat improvement by directing spoil deposition to a particular portion of the site. Encroaching vegetation or silty substrates unsuitable for nesting can be covered with suitable nesting substrates (coarse sand, pebbles, or broken shells). Dredge material can also be used to increase site elevation and reduce flooding. Biologists also make recommendations to lessen the probability of degradation of existing habitat values by dredging operations.

Guidelines for Dredging Operations Scheduled for the Breeding Season (March 15 - August 15)

Principal issues to be resolved include delineating and identifying nesting habitat; determining dredged material suitability as nesting substrate; selection of deposition sites; scheduling equipment set-up and operation; and, positioning on-shore equipment.

1. Selection of a dredged material disposal site depends on an assessment of nesting habitat values in project area and on an analysis of the material composition.

a. No material should be deposited on sites assessed by a qualified biologist as suitable for nesting.

b. In areas with limited habitat value, suitable material may be used for habitat improvement or restoration.

- High quality sediments contain a large proportion of sand with lesser amounts of shell particles (0.025-0.125 inches in diameter) and small pebbles.
- Organic materials and fine silts are not suitable.
- If unsuitable sediments are present, they may be used if capped with 1-2 feet of suitable sand and coarser materials.

c. Suitable material may be used to cover excessive vegetation (> 5% coverage) on Piping Plovers and Least and Common Tern sites. Not all vegetation should be covered at sites that include Roseate Tern use.

d. Sites used for material deposition within the past 5 years should be renewed with new material and the area of suitable habitat should be increased if possible.

e. If existing substrates are unsuitable for nesting, material may be deposited regardless of its suitability for nesting (other environmental concerns such as wetland or runoff problems would still have to be addressed).

2. Actual deployment of equipment depends on the historical use boundaries of the habitat area and project timing.

a. Set up on-shore equipment *before* the birds' arrival. Timing will be variable and depends on weather and bird species. Generally, equipment should be set up in March. No equipment set up should occur once birds have arrived.

b. Pipelines should be located at least 200 feet away from habitat boundaries whenever possible.

c. Pipelines may be located along historical habitat boundaries provided that extra care is taken to check all pipe joints for potential leaks; flow from leaks can destroy eggs and kill chicks once the colony is active. Pipelines should remain in place until the end of the breeding season to avoid disturbance.

d. Pipeline discharges should be located at least 600 feet from sites used by over ten pairs of terns, or more than one pair of Piping Plovers.

e. Material should be deposited no closer than 200 feet to a site used by fewer than ten pairs of terns, or one pair of Piping Plovers. Slurry water should not be allowed to flow through the habitat.

f. Heavy equipment use for material transport or grading should be set back at least 1000 feet from an active site.

3. Once equipment is deployed, additional safeguards must be taken. These depend on the actual habitat use following arrival of the birds.

a. Identify active breeding areas within 1500 feet of the work site through observation of courting or nesting birds (April and May). Birds are easily disturbed during courtship and territory establishment, so observations should be conducted from a distance. Once birds have completed nests and are laying eggs, they are much less easily disturbed.

b. Determine primary and buffer zone boundaries of the colony or nest site.

- Primary boundary for solitary Piping Plovers is the nest itself.
- Primary boundary for a tern colony is a line that includes all nests on the periphery of the colony.
- Buffer zone boundary is 200-800 feet from the primary boundary, depending on site topography, and should be maximized wherever possible.

c. Select appropriate fencing material and erect it along the buffer zone boundary (See Section 5.2.4).

5.4 Environmental Degradation and Predation

Degradation of beaches with litter and food scraps attracts scavenger-predators to plover and tern nesting areas. Eggs, chicks, and occasionally, adult plovers and terns are killed, and may be eaten, by these animals. Controlling beach litter reduces attraction of potential predators to these areas. Garbage cans on beaches should be located away from nesting areas and should be emptied and cleaned (deodorized) frequently. Beaches near nesting areas should be routinely patrolled for litter. Educational materials should inform beach users of the hazards of litter and food scraps.

Garbage from nearby residences increases the amount of food available to potential predators, and increasing the predator population in the area. An increased number of predators are likely to result in an increase in losses of eggs and chicks. Garbage cans should be tightly covered and kept within scavenger-proof enclosures. Garbage bags, which can be ripped open by animals, should not be left unattended for pick-up. Regular patrols by municipal or private sanitation crews should be made to pick up roadside litter and trash. If household food scraps are added to backyard compost piles, provisions to exclude scavengers should be made. Intentional and unintentional feeding of potential predators (gulls, raccoons, skunks, foxes, weasels, etc.) should be discouraged.

Predation by native species is a natural process that should only be interfered with when it reaches excessive proportions. Conversely, predation by non-native animals should be controlled as soon as it is detected, regardless of its intensity. Upon observing *any* mortality due to predation, the identity of the predator should be determined, either by observations in the field or analysis of kills by a wildlife biologist or veterinarian with appropriate experience. Determination of the presence of predators before the onset of the breeding season facilitates a successful control program. The following information on assessing and reducing predation are taken from Buckley & Buckley (1978).

Indications of excessive predation, by either native or non-native predators include:

- large numbers of punctured eggs;
- large numbers of broken eggs with yolk inside (unhatched eggs);
- partially eaten or dismembered adults or young;
- large numbers of uneaten, dead chicks;
- large numbers of displaced or missing eggs;
- sudden appearance of empty nests previously containing eggs; and,
- tracks, scats, or other signs of predator species.

Native predators include a number of bird and mammal species. Control of these animals should only be conducted when it is determined that excessive predation is occurring or when endangered species are threatened. Ideally, the species *and* individual responsible for mortality should be determined. DEC must provide a nuisance wildlife permit before any protected or game species may be trapped; suitable sites for release of live animals are often difficult to find. *Never* release animals without permission of the landowner.

Sometimes, electric fences and physical exclosures can be used successfully to deter predators, although these are generally only effective in protecting eggs in nests. Once eggs hatch, plover chicks are highly mobile and do not stay within a fenced area. Attempts to reduce gull predation in tern colonies by stringing monofilament fishing line from post to post several feet above the ground has had success elsewhere. It may be appropriate to test this method at selected Long Island colonies suffering significant predation by gulls or owls. All predator control efforts must be approved and supervised by a DEC biologist.

Non-native predators include domestic dogs and cats, rats, and domesticated animals that have been allowed to become wild. If their presence is confirmed, these threats should be controlled or removed whenever conditions and local laws allow. Norway and black rats can be controlled by poisoning, trapping, and burrow destruction, preferably by a licensed exterminator under the supervision of a wildlife biologist. If rats are confirmed at a site, the control program should be conducted prior to arrival of birds.

Feral dogs and cats should be eradicated by any acceptable method. Laws governing unleashed pets must be strictly enforced, particularly within one-half mile of colonies or nest sites.

5.5 Vegetation Succession

Vegetation succession eventually leads to reduced suitability of nesting sites for all but Roseate Terns. The quality of an excessively vegetated site can be improved by manual (using hand tools) or mechanical (using tractors and bulldozers) removal of vegetation. Excessive vegetation may also be covered using suitable dredged material or sandy material from other sources. Manipulation of designated tidal wetlands requires a DEC permit.

5.6 Flooding

Loss of tern colonies and plover nests from flooding is due to several reasons. Unfortunately, birds often select low-lying areas that are likely to be flooded during a "normal" monthly high tide. Why birds do this is unknown. They may be returning to a site used successfully in previous years that has subsequently lost elevation to erosion. They may be young, inexperienced birds who are inexperienced at selecting nest sites. Or, these birds may be selecting these sites as the best available habitat due to factors which make other seemingly suitable areas unsuitable to them, such as presence of predators or humans. In any case, these situations seem to occur every season. Deposition of dredge material to increase elevation of the site or removal of erosion-inducing structures may be the only alternatives to this problem, since the birds do not appear to adapt in these cases. Follow-up monitoring should be conducted to see if any corrective actions make birds more or less likely to attempt to nest at the site and to measure their reproductive success if they do attempt nesting.

Other colonies are lost to flooding in unusually high tides or storm surges. Given the environment that these birds must nest in, very few sites are safe from this kind of flooding. High waters may occur only once every several years, and birds may attempt renesting at the same site after waters recede. Attempts to prevent sporadic flooding would probably result in greater disturbance to the habitat and birds than the flooding itself, and generally should not be undertaken.

6.0 Existing Public Agency Responsibilities for Natural Resource Management

Many government agencies have overlapping responsibilities and jurisdictions for management and regulation of activities on Long Island's coast. This section provides an introduction to the different agencies along with brief descriptions of their responsibilities. Material presented in this chapter is adapted from New York's Eastern Lake Ontario Sand Dunes: Resources, Problems, and Management Guidelines (DOS, 1989).

6.1 Federal Agencies

Army Corps of Engineers (COE)

All of Long Island falls within jurisdiction of the New York District of the Corps of Engineers, which is headquartered in New York City. Under provisions of federal laws (Section 10 of the River and Harbor Act of 1899; Section 404 of the Clean Water Act; and, Section 103 of the Marine Protection, Research and

Sanctuaries Act), the COE regulates structures in or affecting navigable waters of the United States and reviews and issues permits for excavation or deposition of materials in navigable waters. The COE is also responsible for evaluating applications for Department of the Army permits to deposit dredged and/or fill material into waters of the U.S., including adjacent wetlands. In general, a permit must be received from the COE for filling wetlands and navigable waters, placement of structures in navigable waters, and dredging and disposal of dredged material. The COE is also responsible for Federal navigation projects specifically authorized by Acts of Congress.

On Long Island, the COE plays a major role in the protection of beach-nesting shorebirds since COE permits are required for all public and private dredging activities, including maintenance of boating channels, structures in or over wetlands, and fill in or adjacent to the water, including depostion of dredged materials. Any such activity falling at or below the high spring tide line requires a COE permit. The COE is also directly responsible for construction and maintenance of inlet jetties, canals, navigation channels, major groin fields, and beach nourishment for hurricane and storm protection.

Environmental Protection Agency (EPA)

EPA is the primary federal agency responsible for administering and enforcing federal environmental laws such as the Clean Water Act and National Environmental Policy Act. Long Island is under the jurisdiction of the Region II office of EPA, located in New York City. EPA reviews all COE permits for dredging and construction of coastal structures and has the authority to veto issuance of permits if environmental standards are not met. EPA can take enforcement actions against unauthorized activities, impose civil fines, and seek criminal penalties.

Department of the Interior (DOI)

The Department of the Interior includes: the National Park Service (NPS), which manages Gateway National Recreation Area, Jamaica Bay National Wildlife Refuge, Fire Island National Seashore; and, the Fish and Wildlife Service (FWS), which manages Seatuck and Morton National Wildlife Refuges. Under the federal Endangered Species Act, FWS is responsible for identifying species whose populations are at dangerously low levels, such as the Piping Plover (threatened), Least Tern (threatened), and Roseate Tern (endangered) and preparing and implementing recovery plans to restore the populations of these species. FWS reviews plans for all federal actions, including insuance of COE permits, that might affect listed species to ensure that the species and their habitats will not be jeopardized by the actions. FWS agents will respond to reports of harrassment or taking of any federally protected species. FWS has delegated the authority to issue permits to individuals who conduct research or management activities that affect federally listed species to staff of the New York State Department of Environmental Conservation.

National Oceanic and Atmospheric Administration (NOAA)

NOAA is a branch of the US Department of Commerce that administers the federal Coastal Zone Management Program, authorized by the federal Coastal Zone Management Act. This federal program transfers jurisdiction to the New York State Coastal Management Program, which is administered by the NYS Department of State. Under this program, the State gains the authority to review all federal actions affecting the State's coastal zone. No federal permit can be issued by a federal agency, unless the state agrees through its coastal management program. Direct federal actions such as federal navigation channel dredging, beach nourishment, or inlet maintenance also must be consistent with the State's coastal policies.

Federal Emergency Management Agency (FEMA)

FEMA administers the National Flood Insurance Program.

6.2 State Agencies

Department of Environmental Conservation (DEC)

DEC's Region 1 office in Stony Brook has responsibility for resource management and regulatory review for Nassau and Suffolk Counties, and Region 1 staff work closely with DEC's headquarters Non-Game and Endangered Species Units. DEC Region 1 staff manage two sites used by Long Island's beach-nesting birds and conduct periodic nesting surveys in all colonies. DEC's Region 2 office in New York City has similar responsibilities on Long Island in Queens and Brooklyn.

The state's Endangered Species Act authorizes DEC to list and protect "endangered" and "threatened" species. DEC's Division of Fish and Wildlife is responsible for identifying and listing these species and reviewing state permits for activities that might impact them. DEC lists Piping Plovers, Least Terns, and Roseate Terns as "endangered" and Common Terns as "threatened." Although the authority of the state to protect *habitats* of state-listed species, as opposed to just the organisms themselves, under the state's Endangered Species Act has never been tested, some DEC staff believe that authority exists; others interpret the Endangered Species Act as only authorizing protection of the organisms themselves. Even if the limited interpretation of the Endangered Species Act were correct, the authority to protect habitats is very clear under the Coastal Management Program, which is available to all State agencies. DEC reviews and issues all permits to researchers and land managers whose work affects these beach-nesting birds in NYS.

The state's Freshwater Wetlands Act and Tidal Wetlands Act authorize protection and regulation of use and development of freshwater and tidal wetlands. Any activities resulting in a loss of wetlands or impairment of their functions and benefits require a DEC permit. Buffer areas up to 100 feet from the wetland for freshwater wetlands and 300 feet from the wetland for tidal wetlands are included in the protected and regulated areas. Provisions of the tidal wetlands law provide some degree of protection for almost all plover and tern nesting areas, which normally occur within 300 feet of the "littoral zone" (shoreline); enforcement, however, is variable. Maps of designated freshwater and tidal wetlands are maintained at DEC's Region 1 office at Stony Brook.

The state's Coastal Erosion Hazard Areas Act empowers DEC to identify and map coastal erosion hazard areas and adopt regulations to control certain activities and development in these areas; regulatory authority may be delegated to municipalities that develop comparable programs. Maps have been filed for all of Long Island and can be viewed at DEC's Region 1 (Nassau and Suffolk Counties) and Region 2 (Brooklyn and Queens) Offices or at all included municipal (town and village) offices. The City of New York has declined to develop its own program and relies on DEC's Region 2 Office to review and issue permits in erosion hazard areas. All towns except for the Town of East Hampton and some villages have assumed local regulatory jurisdiction; DEC currently has regulatory authority in the Town of East Hampton. Coastal erosion hazard areas include "structural hazard areas," which are receding at an average rate of one foot or more per year, and "natural protective feature areas," which include beaches, dunes, sandbars, spits, shoals, barrier bays, barrier islands, bluffs, and wetlands. Construction or placement of a structure, or any action or use of land that significantly alters the condition of the land, requires an erosion area permit. Specific consideration of habitat values and presence of vulnerable species is included under this act, and technically could be used to control many acitivities that currently threaten these resources.

Under the state's Classification of Waters Program and pursuant to the federal Clean Water Act, New York has classified its coastal waters and r.. ..treams, lakes, and ponds according to consderations of best u.. ' has adopted water quality standards for each class of waters. Classifications are used by DEC in issuing permits to industrial and commercial users for effluent discharge into surface waters. Under the State Pollutant Discharge Eliminations System (SPEDES), DEC regulates discharges into the state's surface and ground waters from all industrial, commercial, and municipal users as well as those from residential subdivisions of five or more lots.

Whenever a state permit is required or when certain applications to town boards for zoning variances, for example, are submitted, a comprehensive review of environmental impacts of the action is required by the State Environmental Quality Review Act (SEQRA). SEQRA provides guidelines for determining which actions are likely to have a significant environmental impact (Type I), which triggers a more intensive review and may require production of an Environmental Impact Statement (EIS), and those actions that are not likely to have a significant environmental impact (Type II) and do not need SEQRA review or an EIS. SEQRA provides that any state agencies reviewing a Type I or unlisted action occurring in the coastal area must comply with standards of the state Waterfront Revitalization and Coastal Resources Act which includes specific provisions for the protection of designated habitats (see following description of Department of State responsibilities). SEQRA also authorizes the designation of "critical environmental areas" by the state or local governments; any unlisted action occurring wholly or partially within or substantially contiguous to any critical environmental area must be treated as a Type I action.

The New York Natural Heritage Program (NYNHP), a joint effort of DEC and The Nature Conservancy, maintains offices with the Signficant Habitat Unit in Latham, NY. NYNHP maintains a database listing all known occurrences of rare species (plants and animals) and unusual or exemplary natural communities in New York State. All occurrences are mapped on topographic maps. This information is used by DEC and other agencies in the regulatory review process to avoid issuing permits that would destroy or degrade these areas.

Department of State (DOS)

DOS, through its Division of Coastal Resources and Waterfront Revitalization, administers New York State's Coastal Management Program (CMP), which is located in the Department's Albany offices.

Authority for CMP was established by the state Waterfront Revitalization and Coastal Resources Act of 1981, which recognized that one of the greatest obstacles to regulatory protection of NY's coastal areas was lack of consistency and coordination in enforcement of policies from one agency to another. The CMP has identified 44 coastal policies, which seek to balance resource protection and economic development in coastal areas, that must be consistently considered and adhered to, regardless of the agency having lead responsibility, for all actions regulated (requiring a permit), funded, or directly undertaken by federal or state agencies and local actions requiring SEQRA review (except actions defined under SEQRA as Type II actions). DOS enforces these provisions unless the local municipality has prepared and implemented a DOS-approved Local Waterfront Revitalization Program, in which case the local municipality has permitting and enforcement jurisdiction.

CMP has designated and mapped "significant coastal fish and wildlife habitats," based on recommendations by DEC, within the coastal zone; these areas are targeted for protection by the coastal management consistency requirements. Significant habitats are those that 1) are essential to the survival of a large portion of a

particular fish or wildlife population; 2) support a species listed as endangered, threatened, or of special concern in NYS; 3) support fish or wildlife populations having significant commercial, recreational, or educational value; or 4) contain a type of habitat not commonly found in NYS or a coastal region of the state. All sites which have demonstrated repeated use by the beach-nesting shorebirds considered in this report qualify for designation as significant coastal fish and wildlife habitats.

Under the federal consistency standards of the CZMA, no federal permit may be issued or direct federal action take place without the concurence of the State's CMP. Since the only direct authority for protection of habitats is contained in the CMP, the consistency requirement has become a particularly powerful regulatory mechanism to achieve protection of beach-nesting shorebird habitats.

Office of Parks, Recreation, and Historic Preservation (OPRHP)

OPRHP is responsible for maintaining a statewide system of parks and historic sites to meet the recreational needs of the people of New York State. The Long Island Regional Office oversees management of several state parks on Long Island. Jones Beach, Gilgo, Robert Moses, Caumsett, Heckscher, Hither Hills, Napeague, Montauk Point and Orient Beach State Parks are managed primarily for recreational use, although all contain significant habitats for beach-nesting birds.

Office of General Services (OGS)

OGS administers all state-owned coastal lands below high tide. Under the Public Lands Law, most private uses of submerged land within the public domain require a grant, easement, or lease from OGS. The Division of Land Utilization in the Albany OGS office administers this program. Lands under water or formally under water along the Atlantic Ocean are generally under State jurisdiction, while many under water lands within bays and Long Island Sound are under local trustee jurisdiction within the towns.

Department of Health (DOH)

DOH enforces public health laws and the State Sanitary Code and reviews and approves all water and sewer/septic permits for commercial uses and residential subdivisions. On Long Island, authority to issue residential sewer/septic permits has been delegated to county health departments, which also oversee water supply issues.

6.3 County, Town, and Municipal Agencies

Long Island comprises Kings, Queens, Nassau, and Suffolk Counties. Kings and Queens Counties are within New York City (boroughs of Brooklyn and Queens, respectively), and only Queens currently has habitat for plovers and terns. All but one site are federally owned and managed; the single privately owned site is subject to NYC zoning and development regulations.

Nassau County comprises three townships: Hempstead, North Hempstead, and Oyster Bay. Suffolk County includes the towns of Babylon, Islip, Brookhaven, Riverhead, Smithtown, Huntington, Southampton, East Hampton, Shelter Island, and Southold. Nassau and Suffolk County health departments issue permits for septic and sewer systems within their boundaries. Town and village planning and zoning boards have primary oversight for development projects. Most municipalities now have "natural resource conservation boards" or "wetlands boards" that participate in the review of any actions that might affect natural resources. These boards make recommendations to their respective municipal planning boards.

As mentioned earlier, many municipalities have accepted responsibility for reviewing actions proposed in coastal erosion

hazard areas and issuing permits with appropriate restrictions. Most municipalities are also in the process of preparing local waterfront revitalization plans under direction of the state's coastal manage `m. When these plans are approved, municipalities will hav. :sponsibility for reviewing all state and federal actions in the coastal zone to ensure their consideration and adherence to the 44 coastal management consistency requirements of the State's CMP.

Any projects proposed within 500 feet of a tidal estuary (usually the shoreline) receive additional review by the Long Island Regional Planning Office, which assesses adequacy of restrictions, if any, imposed by municipal planning boards. Although the Regional Planning Office may recommend different restrictions or conditions than a municipal planning board, the municipal board can overrule regional recommendations.

Nassau and Suffolk Counties and many towns, town trustees, and villages own and manage important natural areas, including many nesting areas for plovers and terns. They promulgate regulations for use of these sites, many of which are recreational bathing beaches and parks, and issue permits for ORV use. All provisions of both the Coastal Erosion Hazard Area Act and Waterfront Revitalization and Coastal Resources Act must be considered by local offices managing these areas.

A problem that became obvious while preparing this section of the report is the degree to which state and local regulators are unfamiliar with state and local statutes, particularly those which they, as individuals, are not charged with enforcing. For example, many *species-oriented* DEC staff were unaware of the *habitat protection* provisions of the Coastal Erosion Hazard Areas Act and the Waterfront Revitalization and Coastal Resources Act. Some town staff were not aware that even beneficial activities (such as devegetation of overgrown dredge spoil) within 300 feet of the shoreline require a DEC tidal wetlands permit. And many individuals do not realize that a DEC permit is needed to enter tern colonies or disturb plovers, even though the disturbance might only be the result of a nest count census. *There is a clear need for state and local regulators to be better informed of all species and habitat protection laws.*

7.0 Site Narratives and Maps

These narratives and maps provide details about most known nesting sites for Piping Plovers and Least, Common, and Roseate Terns on Long Island. Many organizations and individuals have helped collect this data, most notably staff and volunteers of the Seatuck Research Program, which publishes the annual Long Island Piping Plover and Colonial Waterbird Survey. The Nature Conservancy's plover and tern stewards for 1988 used Seatuck's data, along with that of DEC Region 1 and staff and volunteers of National Audubon Society and local chapters, to generate a summary for each site and provided information on the general location of nesting birds at each site.

There may be active nest sites that are not included here because they were not reported to DEC, Seatuck, or The Nature Conservancy. Some new 1989 sites, without previous use, are not included. In making land use decisions, a visit to the site in question to assess the value of the site to plovers and terns should be made by a qualified biologist, regardless of whether it is an active site included in this report or not.

Chapter Organization

The chapter is divided into six regions based on municipal boundaries and the location of habitat sites as follows:

Queens and Nassau Counties;
Babylon, Islip, Huntington, and Smithtown;
Brookhaven and Riverhead;
Southampton;
East Hampton; and,
Shelter Island and Southold.

Each region begins with an **index map** to scale which includes an accurate set of numbered detail map overlays. By knowing the general location of interest, the index map provides rapid access to the map number for habitat location and boundary details. A **map and site name index** is located on the back of each regional map providing direct reference to each site description.

Site Descriptions and Maps

The following section provides an explanation of the abbreviations and conventions used on the one-page site descriptions and the separate maps contained in this chapter.

Most **site names** are those used by the New York Natural Heritage Program (NYNHP) database as "survey" or "conservation" site names. A comment notes the Seatuck Research Program's site name where it is different from the site name used in this report. Location information includes county, town, and village or other "local" name.

NYS Department of Transportation topographic **maps** were used as the base for all mapping, and the code after each topographic map name is a code assigned by NYNHP. Although these maps are updated periodically, they are never absolutely current. Coastal landforms are dynamic, and many features that show up on the maps no longer exist or have changed significantly.

Ownership indicates whether the site is publicly or privately owned, and if the site falls within a designated "significant coastal fish and wildlife habitat," the Coastal Management Program's name for that site is listed.

Species use information is presented in simple mnemonic code:
PP represents Piping Plovers;
LT represents Least Terns;
CT represents Common Terns;
RT represents Roseate Terns; and,
BS represents Black Skimmers.

A "-" means that official surveys were not conducted in those years; a "?" means that reports of numbers are unclear, so no data are reported. All [illegible]ers are best estimates of individual adults, all of whom are potential breeders, at the site.

Site management comments are also purposefully made simple. **Land use history** was not investigated in detail for every site, but an attempt was made to note dredging history and to talk to individuals knowledgeable about each site. **Protective measures** taken at each site are noted, as are particularly **postive aspects** contributing to success of birds and **threats**, which may be current or potential problems contributing to low nesting success.

Recommendations to protect habitats and improve nesting success are many and varied. In most cases, however, a qualified biologist should visit the site before any manipulative management is undertaken. In addition permits may be required if the site is currently functional habitat. Fencing and posting should be done by trained individuals, and **no actions that will disturb birds may be undertaken without a permit from the NYS Department of Environmental Conservation's Non-Game Unit.**

The **contacts** listed are usually individuals with the most first-hand information about a particular site. In some cases, because of personnel turnover, an organization rather than an individual is listed.

Maps showing general locations of each site are grouped in numerical order following site descriptions. In many cases, several sites are illustrated on a single map. In some cases, sites from adjacent townships occur on a single map; in these instances, a duplicate map is located under the region containing the adjacent municipality . A dashed line on a map is used when tern colonies moved within a site from one year to the next. This dashed line represents the 1987 location of the colony. Otherwise, solid lines are used to designate nesting areas.

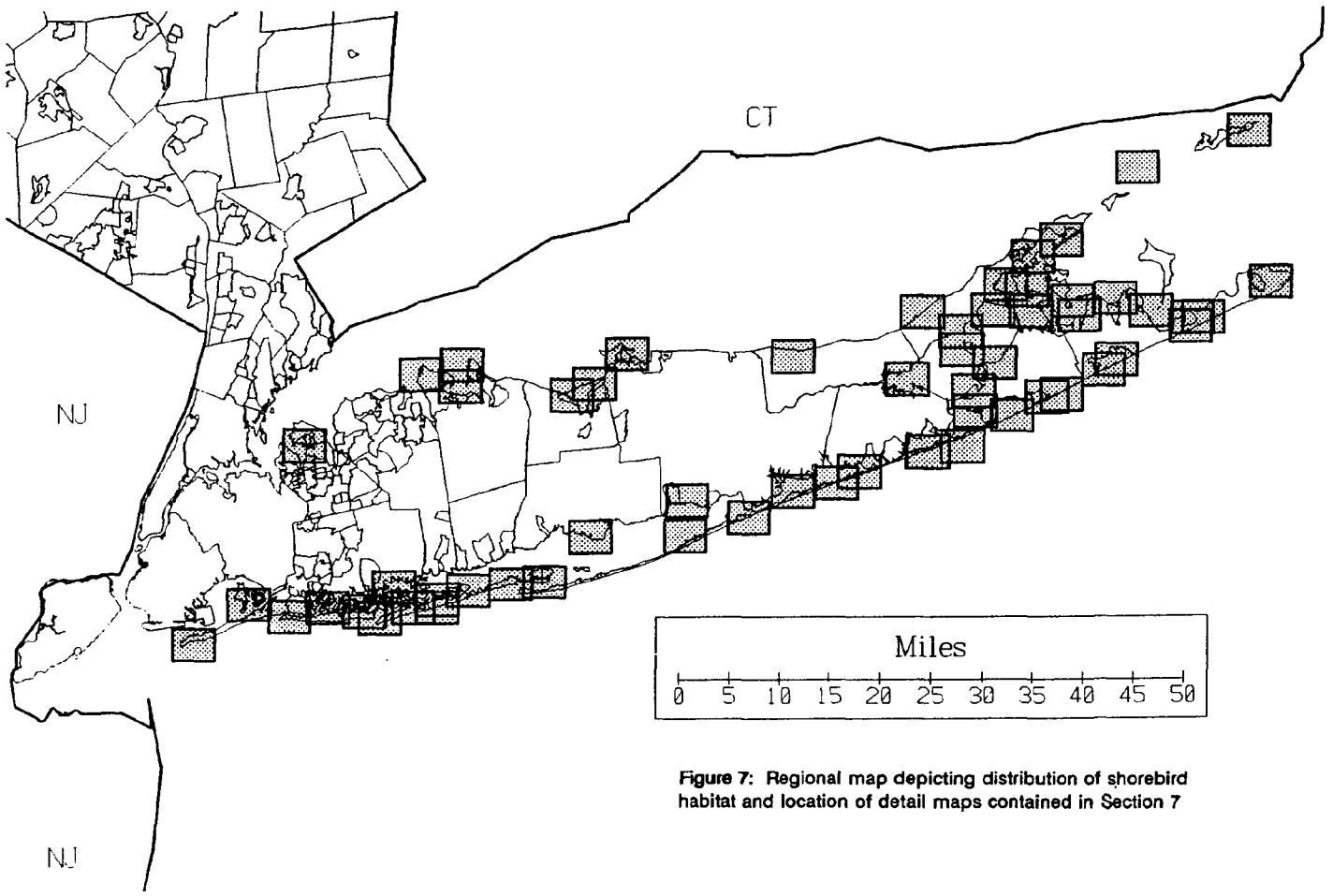
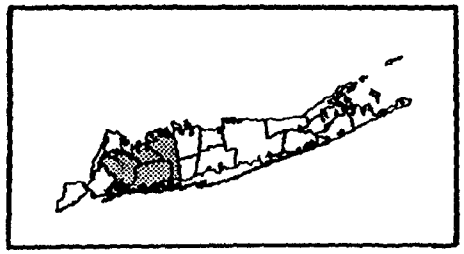
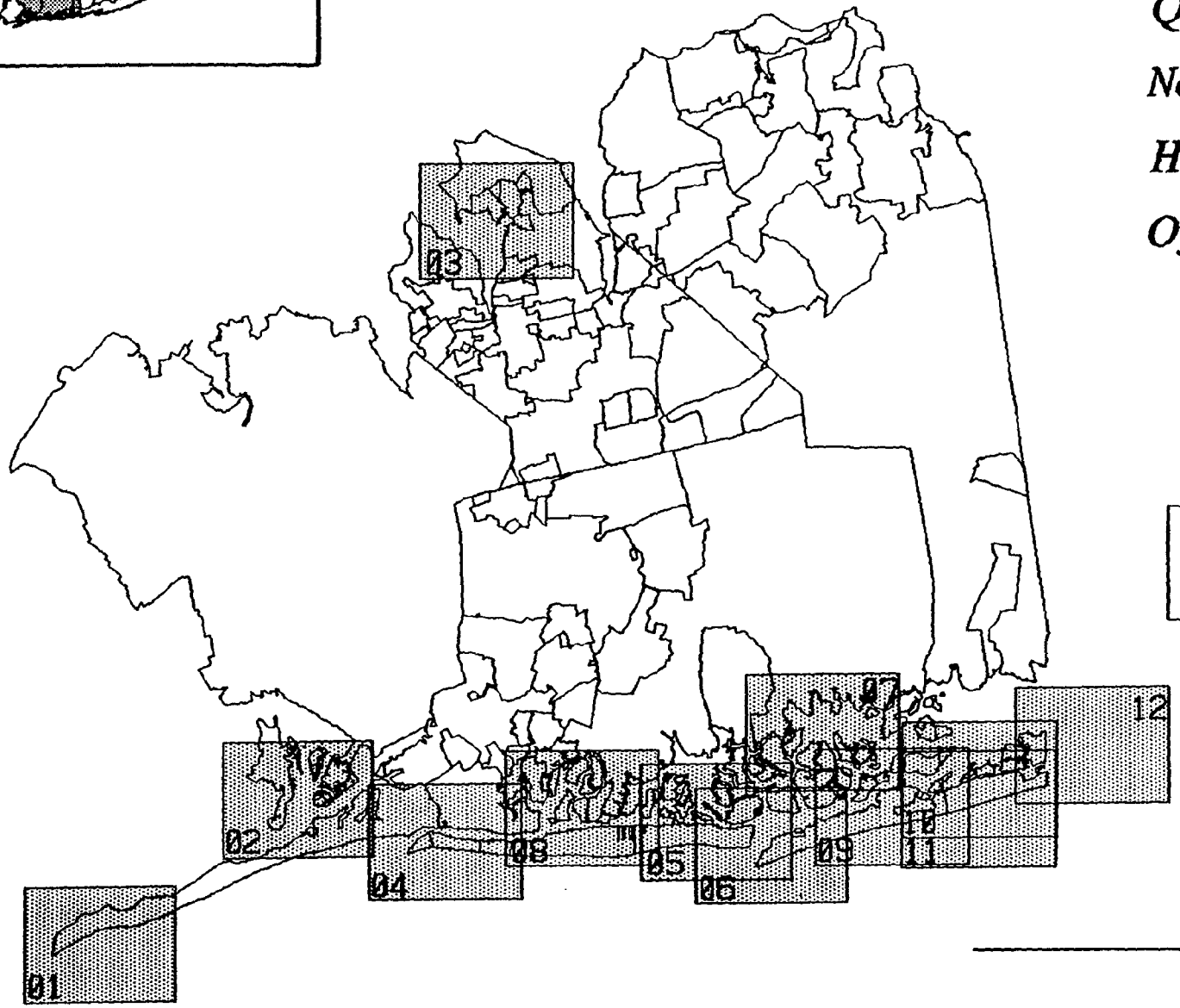


Figure 7: Regional map depicting distribution of shorebird habitat and location of detail maps contained in Section 7





Municipalities

Queens

North Hempstead

Hempstead

Oyster Bay

Miles

0 1 2 3 4 5

QUEENS

Map No. 1
Breezy Point NPS 45
Breezy Point Cooperative 46

Map No. 2
Silver Hole [illegible] 47
Subway Island 48
Jo Co Marsh 49
East High Meadow 50
Duck Creek Marsh 51

NORTH HEMPSTEAD

Map No. 3
Plum Point 52

HEMPSTEAD

Map No. 4
Silver Point Jetty 53
Ocean Beach Club 54

Map No. 5
Lido Beach Town Park 55
Lido Beach Town House Site 56
Nassau Beach 57
Gull Island 58
North Cinder Island 59

Map No. 6
Point Lookout 60
Short Beach West End 61
Short Beach West End 2 62
Short Beach West End 1 63

Map No. 7
Cedar Creek Park 64
Olivers Island 65
Cuba Island 66

Map No. 8
South Green Sedge Island 67
Pearsalls Hassock 68
East Channel Islands 69
Lawrence Marsh 70
North Green Sedge Island 71
Three Cornered Hassock 72

Map No. 9
Deep Creek Meadow 73
Zachs Bay 74

Map No. 10
Middle Line Island 75
Neds Island 76
North Line Island 77

OYSTER BAY

Map No. 11
Tilted Log Island 78
Islands NW of Tobay Tower 79
Jones Beach Parking Lot 9 80

Map No. 12
Islands East of West Island 81

Breezy Point NPS

SEE MAP NO. 1

LOCATION:

County, Town, Locality: Queens, Rockaway, Breezy Point.
Map Quad: Coney Island, 4007358.
Directions: Located 3 miles west-southwest of the Marine Parkway Bridge, at western tip of Rockaway Point, including north and south beaches.
Owner: US National Park Service (Gateway National Recreation Area).
Significant coastal habitat: Proposed for designation.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	8	10	10	30	25	40	34
LT	550	377	109	132	200	215	400	235
CT	-	-	0	2	0	0	35	70

Comments:

SITE MANAGEMENT:

Land use history: No dredging.
Protection: Cable-fenced, posted and monitored by NPS. Meryl Goldin of the University of Massachusetts began a 4-year study of piping plovers at the site in 1988.
Positive aspects: Owned and managed by U.S. National Park Service. Good productivity of least terns, largest concentrations of nesting piping plovers and least terns on Long Island. Good predictability of nesting activity between years. Recreational use restricted to fishing.
Threats: ORVs, predation (feral cats), pets (cats and dogs) and recreation (foot traffic).
Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Implement predator control. Restrict foot traffic during piping plover nesting season. Restrict pets and educate owners, ORV users, and public about beach-nesting birds.
Contacts: Dave Avrin, Gateway National Recreation Area, Breezy Point Unit, Fort Tilden Bldg. #1, Rockaway, NY 11695, (718) 849-9142.

Breezy Point Cooperative

SEE MAP NO. 1

LOCATION:

County, Town, Locality: Queens, Rockaway, Breezy Point.

Map Quad: Coney Island, 4007358.

Directions: Located 2 miles west-southwest of the Marine Parkway Bridge, on south beach of Rockaway Point, adjacent to and northeast of National Park Service's Breezy Point Unit of the Gateway National Recreation Area.

Owner: Private

Significant coastal habitat: Proposed for designation.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	-	-	-	-	-	14	30
LT	-	-	-	-	-	-	108	154

Comments: The numbers of birds observed were previously included in the Breezy Point NPS site, however the differences in management between these sites makes it necessary to separate them.

SITE MANAGEMENT:

Land use history: No dredging.

Protection: The homeowners' cooperative has not responded to TNC requests to fence, post and monitor site, so the birds nesting here have not been protected.

Positive aspects: Good numbers of least terns and piping plovers attempted nesting in 1988.

Threats: Recreation, ORVs, pets (dogs) and potential development. Beach-cleaning vehicles and equipment used by homeowner's association destroys nests and eggs.

Recommendations: Designate as significant coastal habitat. Obtain permission from the homeowners' cooperative to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Restrict pets and educate residents, ORV users, and public about beach-nesting birds. Restrict or mitigate development.

Contacts: Don Riepe, Gateway National Recreation Area, Floyd Bennett Field, Bldg. #69, Brooklyn, NY 11234, (718) 934-2484.

Silver Hole Marsh

SEE MAP NO. 2

LOCATION:
County, Town, Locality: Queens, NYC
Map Quad: Far Rockaway, 4007357.
Directions: East of Cross Bay Blvd., southern part of island system.
Owner: US National Park Service (Jamaica Bay National Wildlife Refuge)
Significant coastal habitat: Proposed for designation.

SPECIES USE:
Community type: Saltwater non-barrier island
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	440	780	355	478	565	185

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted and patrolled.
Positive aspects: Owned and managed by U.S. National Park Service.
Threats: Flooding, predation, and vandalism are potential threats.
Recommendations:
Contacts: Dave Avrin, Gateway National Recreation Area, Breezy Point Unit, Fort Tilden Bldg. #1, Rockaway, NY 11695, (718) 849-9142.

Subway Island

SEE MAP NO. 2

LOCATION:
County, Town, Locality: Queens, NYC
Map [illegible]away, 4007357.
Directions: East of [illegible] Bay Blvd., southern part of island system.
Owner: US National Park Service (Jamaica Bay National Wildlife Refuge)
Significant coastal habitat: *Proposed for designation.*

SPECIES USE:
Community type: Saltwater non-barrier island
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	54	0	0	0	0	?
BS	-	-	14	2	0	0	0	?

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted, fenced, and patrolled.
Positive aspects: Owned and managed by U.S. National Park Service.
Threats: Flooding, predation, recreation, and vandalism are potential threats.
Recommendations:
Contacts: Dave Avrin, Gateway National Recreation Area, Breezy Point Unit, Fort Tilden Bldg. #1, Rockaway, NY 11695, (718) 849-9142.

Jo Co Marsh

SEE MAP NO. 2

LOCATION:
County, Town, Locality: Queens, NYC
Map Quad: Far Rockaway, 4007357.
Directions: East of Cross Bay Blvd., end of runway at JFK Airport.
Owner: US National Park Service (Jamaica Bay National Wildlife Refuge)
Significant coastal habitat: Proposed for designation.

SPECIES USE:
Community type: Saltwater non-barrier island
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	314	820	575	558	255	196

Comments: 1985 count was a partial adult count.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted and patrolled.
Positive aspects: Owned and managed by U.S. National Park Service.
Threats: Flooding, predation, and vandalism are potential threats.
Recommendations:
Contacts: Dave Avrin, Gateway National Recreation Area, Breezy Point Unit, Fort Tilden Bldg. #1, Rockaway, NY 11695, (718) 849-9142.

East High Meadow

SEE MAP NO. 2

LOCATION:
County: Queens, NYC
Map Quad. Far Rockaway 4007357.
Directions: West of JFK Airport
Owner: US National Park Service (Jamaica Bay National Wildlife Refuge)
Significant coastal habitat: Proposed for designation.

SPECIES USE:
Community type: Saltwater non-barrier island
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	120	30	-	160	255	-

Comments: 1985 count was a partial adult count.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted and patrolled.
Positive aspects: Owned and managed by U.S. National Park Service.
Threats: Flooding, predation, and vandalism are potential threats.
Recommendations:
Contacts: Dave Avrin, Gateway National Recreation Area, Breezy Point Unit, Fort Tilden Bldg. #1, Rockaway, NY 11695, (718) 849-9142.

Duck Creek Marsh

SEE MAP NO. 2

LOCATION:
County, Town, Locality: Queens, NYC
Map Quad: Far Rockaway, 4007357.
Directions: Directly west of end of runway at JFK Airport.
Owner: US National Park Service (Jamaica Bay National Wildlife Refuge)
Significant coastal habitat: Proposed for designation.

SPECIES USE:
Community type: Saltwater non-barrier island
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	22	0	60	40	0	0

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted and patrolled.
Positive aspects: Owned and managed by U.S. National Park Service.
Threats: Flooding and predation are potential threats.
Recommendations:
Contacts: Dave Avrin, Gateway National Recreation Area, Breezy Point Unit, Fort Tilden Bldg. #1, Rockaway, NY 11695, (718) 849-9142.

Plum Point

SEE MAP NO. 3

LOCATION:

County, Town, Locality: Nassau, North Hempstead, Sands Point.
Map Quad: Sea Cliff, 40073'76.
Directions: Site located on the peninsula on the north side of Manhasset Bay, opposite and north of Great Neck.
Owner: Private.
Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult least terns were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	0	0	0	0	10	85	27

Comments: This "young colony" may be absorbing nesting least terns that are not using the traditional, north shore colony sites such as Eatons Neck and Sand City.

SITE MANAGEMENT:

Land use history: No known dredging.
Protection: Area is closed to public and to protection efforts by TNC or other organizations. Security guard employed by private owners in 1988.
Positive aspects: Good productivity by least terns. Relatively low recreation use due to remote location and posting by owner of no trespassing signs.
Threats: Development (five lots have been proposed for the area).
Recommendations: Expand the Manhasset Bay significant coastal habitat area to include this site. Restrict or mitigate development, or arrive at an agreement with developers to protect the colony in future breeding seasons. The proposed locations of the five units do not (directly) conflict with the nesting of least terns as seen in both 1987 and 1988.
Contacts: Bill Kolodnicki, Theodore Roosevelt Bird Sanctuary, Huntington Audubon Society, 132 Cove Rd., Oyster Bay, NY 11771, (516) 922-3200.

Silver Point Jetty

SEE MAP NO. 4

LOCATION:

County, Town, Locality: Nassau, Hempstead, Atlantic Beach.
Map Quad: Far Rockaway, 4007357.
Directions: At westernmost tip of Long Beach, located within Silver Point Park, east of the jetty, and southwest of the Sun and Surf Club.
Owner: Nassau County (Silver Point County Park).
Significant coastal habitat: Silver Point Beach.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	4	14	6	6	6	6	4
LT	40	17	70	32	64	107	74	87

Comments:

SITE MANAGEMENT:

Land use history: No dredging history.
Protection: String-fenced, posted, and monitored by volunteers from the Village of Atlantic Beach, TNC, and Town of Hempstead. Sun and Surf Club also snow-fenced the eastern end of colony. Volunteers coordinated by TNC.
Positive aspects: Leased by Sun and Surf Club. Town residents propose to have the area designated as a bird sanctuary. Good predictability of nesting activity between years. Good productivity of least terns and piping plovers.
Threats: Pets (dogs) and recreation.
Recommendations: Maintain as part of Silver Point Beach significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Designate area as a bird sanctuary. Restrict pets and educate owners, public, and residents about beach-nesting birds.
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200. Brigitte Braff, Commissioner of Environmental Conservation, Village of Atlantic Beach, 65 The Plaza, Atlantic Beach, NY 11509, (516) 371-4779.

Ocean Beach Club

SEE MAP NO. 4

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: [illegible]nce, 4007356.
Directions: Located on south side of Long Beach, approximately 1.5 miles east of Atlantic Beach Bridge.
Owner: Private.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Barrier island.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	?	2	4

Comments: No successful breeding in 1988. Exact area used for nesting is unclear.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects: Unknown.
Threats: Predation is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Lido Beach Town Park

SEE MAP NO. 5

LOCATION:

County, Town, Locality: Nassau, Hempstead, Lido Beach.

Map Quad: Jones Inlet, 4007355.

Directions: *Located on south shore of Long Beach, about 1 1/2 miles west of the Loop Parkway Bridge, just west of the Lido Beach Town House* complex, accessed from Lido Beach Blvd.

Owner: Town of Hempstead.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	6	1	2	10	9
LT	-	-	-	0	0	0	22	67

Comments:

SITE MANAGEMENT:

Land use history: None.

Protection: Individual nests string-fenced, posted and monitored by Town of Hempstead. Sites protected on eastern and western sides by snow fence placed on the beach by Town of Hempstead for dune enhancement. Volunteers coordinated by TNC.

Positive aspects: Owned and managed by Town of Hempstead.

Threats: ORV traffic and recreation.

Recommendations: Designate area as significant coastal habitat or include it in the adjacent, Nassau Beach habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Educate the public, area residents and ORV users about beach-nesting birds.

Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Lido Beach Town House Site

SEE MAP NO. 5

LOCATION:

County, Town, Locality: Nassau, Hempstead, Lido Beach.

Map Quad: Jones Inlet, 4007355.

Directions: Located on south shore of Long Beach, about 1 1/2 miles west of the Loop Parkway Bridge, just west of Nassau Beach County Park, and just east of Lido Beach Town Park, accessed from Lido Blvd.

Owner: Unknown.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	-	-	-	-	-	2	?
LT	-	-	-	-	-	-	22	?

Comments: Least tern nesting first recorded at this site in 1988. Some of the adults that later joined the initial nesters may have migrated from the nearby Nassau Beach tern colony, which faltered, apparently due to predation.

SITE MANAGEMENT:

Land use history: No dredging.

Protection: String-fenced, posted and monitored by Town of Hempstead. Volunteers coordinated by TNC. Town of Hempstead also prohibited the Town House complex from grooming the beach where the colony was located.

Positive aspects: High productivity of least terns. Owner has given Town of Hempstead permission to protect the site.

Threats: Recreation (foot traffic), ORV traffic, beach-grooming and pets (dogs).

Recommendations: Expand the Nassau Beach significant coastal habitat to include this site. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Continue to restrict beach grooming during breeding season. Restrict pets and educate owners, ORV users, and public about beach-nesting birds.

Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Nassau Beach

SEE MAP NO. 5

LOCATION:

County, Town, Locality: Nassau, Hempstead, Nassau Beach County Park.

Map Quad: Jones Inlet, 4007355.

Directions: Located on the south shore of Long Beach, about 1 mile west of the Loop Parkway Bridge, just east of Lido Beach Town House complex, and just west of the Nassau Beach county facilities, accessed from Lido Blvd.

Owner: Nassau County (Nassau Beach County Park).

Significant coastal habitat: Nassau Beach.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand and pebble.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	4	0	1	2	2	2
LT	114	163	107	0	6	42	54	17

Comments:

SITE MANAGEMENT:

Land use history: No dredging.

Protection: String-fenced, posted and monitored by Town of Hempstead. Volunteers coordinated by TNC.

Positive aspects: Owned and managed by Nassau County. Relatively low recreational use due to remote location. Good predictability of nesting activity between years.

Threats: Predators (possibly rats, raccoons, gulls and/or neighborhood cats) and advancing vegetational succession.

Recommendations: Maintain as part of Nassau Beach significant coastal habitat. Expand this designated area to include the beaches located immediately south, beaches that are used by piping plovers from this colony. Continue to monitor and protect the colony as birds arrive. Implement predator control. Manage vegetation for optimal least tern nesting. Educate the public about beach-nesting birds.

Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Gull Island

SEE MAP NO. 5

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Jones Inlet, 4007355.
Directions: North of Lido Beach.
Owner: Town of Hempstead.
Significant coastal habitat: Middle Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	84	204	250	222	138	100	57	12

Comments: Parsonage Island is a subcolony.

SITE MANAGEMENT:
Land use history: Part of site is vegetated dredge spoil.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

North Cinder Island

SEE MAP NO. 5

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Jones Inlet, 4007355.
Directions: North of Lido Beach.
Owner: Town of Hempstead.
Significant coastal habitat: Middle Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	518	536	396	324	554	778	712	750

Comments: Cinder Island is a subcolony.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Point Lookout

SEE MAP NO. 6

LOCATION:

County, Nassau, Hempstead, Point Lookout.

Map Quad: Jones Inlet, 7.5.

Directions: Located directly south of the Loop Parkway Bridge on the south shore of Long Beach, extending east past three jetties to the western shore of Jones Inlet.

Owner: Town of Hempstead.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune, and intertidal beaches and mudflats.

Nest substrate: Piping plovers, regularly seen feeding at mudflats on Jones Inlet and on eastern portions of the town beach, did not nest.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	-	-	-	-	0	6	2
LT	0	0	0	0	0	44	0	17

Comments: Piping plovers observed in 1988 were feeding or loafing, no nesting was observed. 1987 colony of least terns failed, suspected raccoon or rat predation.

SITE MANAGEMENT:

Land use history: None.

Protection: String-fenced by Town of Hempstead in 1987. No nesting birds present in 1988.

Positive aspects: Town park owned and managed by Town of Hempstead.

Threats: Beach erosion, recreation (foot traffic), ORV traffic and predation (rats and raccoons).

Recommendations: Designate area as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Implement predator control as necessary. Educate the public, area residents and ORV users about beach-nesting birds.

Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Short Beach West End

SEE MAP NO. 6

LOCATION:

County, Town, Locality: Nassau, Hempstead, Short Beach.

Map Quad: Jones Inlet, 4007355.

Directions: Westernmost tip of Jones Beach and east shore of Jones Inlet, including beaches on both the north and south shores of the island tip, as well as the jetty area.

Owner: NYS Office of Parks, Recreation, and Historic Preservation (Jones Beach State Park).

Significant coastal habitat: West End, Jones Beach State Park.

SPECIES USE:

Community type: Maritime sand beach and dune, and intertidal beaches and mudflats.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	3	0	0	19	19
LT	0	0	-	0	0	0	131	0
CT	2000	1000	460	800	22	56	45	225
BS	250	250	260	112	0	0	0	0

Comments: Most numbers prior to 1987 represent birds in the now-abandoned roadway loop colony, and do not include the inlet area. Now birds nest in the area shown on the map. Common terns that could nest here may now use the Jones Beach West End 1 site, located about a mile east of here. Includes Seatuck sites Jones Beach Inlet and Short Beach, West End 2.

SITE MANAGEMENT:

Land use history: None.

Protection: TNC string-fenced, posted and monitored individual Piping Plover nest sites. The common tern colony was not fenced.

Positive aspects: Owned and managed by New York State Parks. Good numbers of piping plovers. ORV use light, restricted to official vehicles. *Relatively low recreational use due to remote location.*

Threats: Probable predation (gulls) and unknown other problems caused low chick survivorship and fledging for piping plovers.

Recommendations: Maintain as part of West End, Jones Beach State Park significant coastal habitat. Continue to protect nest sites as birds arrive. Restrict ORV use or limit speeds. *Monitor newly hatched piping plovers to ascertain reasons for low survivorship.* Implement predator exclosures. Educate public and ORV users about beach-nesting birds.

Contacts: David Mizrahi, 9 Northcote Rd., Westbury, NY 11590, (516) 334-4398 regarding inlet area. Dr. Carl Safina, NAS, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289 regarding former roadway loop colony.

Short Beach West End 2

SEE MAP NO. 6

LOCATION:

County, Town, Locality: Nassau, Hempstead, Jones Beach.

Map Quad: Jones Inlet, 4007355.

Directions: Located at the east end of Jones Beach West End 2 parking lot, about 1/2 of a mile west of the junction between the Meadowbrook and Ocean Parkways. Also just southwest of Jones Beach West End 1 parking lot, all of these places well marked with state signs.

Owner: NYS Office of Parks, Recreation, and Historic Preservation (Jones Beach State Park).

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	0	4	6
LT	-	-	-	-	-	-	124	0

Comments: This area is just southwest of Jones Beach West End 1, and provides a large amount of suitable piping plover habitat. The least terns at this colony probably nested at the West End 1 colony in previous years, and this colony should be considered a subcolony of West End 1. Least terns first nested at this site in 1988.

SITE MANAGEMENT:

Land use history: No dredging.

Protection: String-fenced, posted and monitored by TNC and Audubon. Volunteers also coordinated by TNC.

Positive aspects: Good productivity by both piping plovers and least terns. ORV use light, restricted to official vehicles. Relatively low recreational use due to remote location (about 1/2 of a mile from the heavily used areas of Jones Beach West End).

Threats: Predation (gulls), recreation and ORV traffic.

Recommendations: Expand Short Beach, Jones Beach State Park significant coastal habitat to include this site. Continue to monitor and protect the colony as birds arrive. Educate the public and ORV users about beach-nesting birds. Continue to restrict ORV use or limit speeds. Implement predator control (exclosures).

Contacts: Dave Mizrahi, 9 Northcote Rd., Westbury, NY 11590, (516) 334-4398. Dr. Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Short Beach West End 1

SEE MAP NO. 6

LOCATION:

County, Town, Locality: Nassau, Hempstead, Jones Beach.

Map Quad: Jones Inlet, 4007355.

Directions: Located on the southern, southeastern, and southwestern sides of parking lot at Jones Beach West End 1, about 1/2 mile west of the junction between the Meadowbrook and Ocean Parkways.

Owner: NYS Office of Parks, Recreation, and Historic Preservation (Jones Beach State Park).

Significant coastal habitat: Short Beach, Jones Beach State Park.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	2	2	10	4	4
LT	0	0	-	210	250	112	84	34
CT	-	-	0	0	550	3846	4882	4768
RT	-	-	0	0	0	4	28	2
BS	-	-	0	0	400	406	296	680

Comments: Jones Beach West End 1 began as a least tern colony in 1985. In 1986, the common tern colony from the nearby Short Beach West End site was abandoned, and its terns began nesting here at West End 1 and have continued to nest here. In 1988, least terns from this West End 1 colony established a subcolony just southwest, called Jones Beach West End 2.

SITE MANAGEMENT:

Land use history: Recreational bathing beach. No dredging history.

Protection: String- and snow-fenced, posted, and monitored by National Audubon Society and TNC. Volunteers coordinated by South Shore Audubon and TNC.

Positive aspects: Owned and managed by Jones Beach State Park; administration has been very effective in carrying out Audubon protection plan. Good productivity by all species. Good predictability of nesting activity year to year.

Threats: Predation (gulls), recreation, and ORV patrols by law enforcement personnel unaware of birds.

Recommendations: Maintain as part of Short Beach, Jones Beach State Park significant coastal habitat. Continue to monitor and protect colony as birds arrive. Implement predator control (exclosures). Educate ORV users about beach-nesting birds. Restrict ORVs and limit speeds.

Contacts: Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Cedar Creek Park

SEE MAP NO. 7

LOCATION:

County, Town, Locality: Nassau, Hempstead, Seaford.

Map Quad: Freeport, 4007365.

Directions: On a peninsula east of Wantagh Parkway and south of Merrick Road in Seaford, about 1/2 of a mile south of the water treatment plant, well marked by a sign on Merrick Road.

Owner: Nassau County (Cedar Creek County Park).

Significant coastal habitat: Cedar Creek County Park.

SPECIES USE:

Community type: Dredge spoil deposition site.

Nest substrate: Sand/spoil and sand/tar.

History: The following numbers of adult least terns were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	140	70	96	80	94	62	0

Comments:

SITE MANAGEMENT:

Land use history: Dredging from Jones Inlet benefitted general navigation. Dredge spoil was deposited on this site as follows.

Approximately 6,000,000 cubic yards were dredged in 1969

Protection: String-fenced, posted and monitored by Town of Hempstead.

Positive aspects: Owned and managed by Nassau County. Relatively low recreational use due to remote location. Good predictability of nesting activity between years.

Threats: Advancing vegetational succession, predation (unknown), recreation (nearby field used for flying motorized, model airplanes), and *development (possible extension of park facilities or water treatment plant).*

Recommendations: Maintain as Cedar Creek County Park significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern nesting. Implement predator control. Enhance site with proper deposition of dredge spoil. Restrict or mitigate development. Educate the public about nesting-birds.

Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Olivers Island

SEE MAP NO. 7

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Freeport, 4007365.
Directions: East of Wantaugh State Parkway, south of Bellmore.
Owner: Town of Hempstead.
Significant coastal habitat: East Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	34	160	96	133	110	132

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Cuba Island

SEE MAP NO. 7

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Freeport, 4007365.
Direct [illegible] Wantaugh State Parkway, island in East Bay.
Owner: Town of [illegible]stead.
Significant coastal habita [illegible]ast Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	242	262	246	226	182	166	128	161

Comments: Subcolonies include NE, NW, and SW.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

South Green Sedge Island

SEE MAP NO. 8

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Lawrence, 4007356.
Directions: North of Long Beach.
Owner: Town of Hempstead.
Significant coastal habitat: West Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	12	0	0	0	0	12	68	0

Comments:

SITE MANAGEMENT:
Land use history: Some low, vegetated dredge spoil.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Pearsalls Hassock

SEE MAP NO. 8

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Lawrence, 4007356.
Directions: North of Long Beach, west of Lawson Blvd.
Owner: Town of Hempstead.
Significant coastal habitat: West Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Deciduous trees-shrubs-grass/sedge/rush/herb.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	4	16	36	174	90	44	38	8

Comments: Subcolonies include Nums Marsh and Hewlett Hassock. No known recent nesting actually on Pearsalls Hassock.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted.
Positive aspects:
Threats: Predation is a current threat; flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

East Channel Islands

SEE MAP NO. 8

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Lawrence, 4007356.
Directions: South of Oceanside.
Owner: Town of Hempstead.
Significant coastal habitat: Middle Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	622	290	450	124	198	166	85	120

Comments: Subcolonies include Garrett Marsh, north subcolony and south subcolony.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Predation and flooding are potential threats.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Lawrence Marsh

SEE MAP NO. 8

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map [illegible], 4007356.
Direction: [illegible] Beach.
Owner: Town of Hempstead.
Significant coastal habitat: West Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Deciduous trees.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	4	72	90	40	20	102	106	30

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Unknown.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

North Green Sedge Island

SEE MAP NO. 8

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Lawrence, 4007356.
Directions: North of Long Beach.
Owner: Town of Hempstead.
Significant coastal habitat: West Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Deciduous trees-shrubs-grass/sedge/rush/herb.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	106	78	26	38	88	30	10	20

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Predation is a current threat; flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Three Cornered Hassock

SEE MAP NO. 8

LOCATION:
County, Town. Locality: Nassau, Hempstead.
Map Q 4007356.
Directions: North [illegible] Beach.
Owner: Town of Hempstea[illegible]
Significant coastal habitat: West Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	0	0	0	0	25	150

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Deep Creek Meadow

SEE MAP NO. 9

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Jones Inlet, 4007355.
Directions: West of Jones Beach Causeway.
Owner: Town of Hempstead.
Significant coastal habitat: East Hempstead Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	0	0	0	0	40	40

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Zachs Bay

SEE MAP NO. 9

LOCATION:

County, Town, Locality: Nassau, Hempstead, Jones Beach.
Map Quad: Jones Inlet and West Gilgo Beach, 4007355 and 4007354.
Directions: Site located on western lobe of Zach's Bay, directly across from Marine Theater of Jones Beach.
Owner: [illegible] of Parks, Recreation, and Historic Preservation (Jones Beach State Park).
Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds were estimated in the years indicated.

	1983	1984	1985	1986	1987	1988	1989
PP	-	-	-	-	-	-	2

Comments: New site for plovers in 1989, a late-nesting pair. May have been a renesting attempt after abandoning an earlier site. Seatuck calls this site Jones Beach, Zach's Bay.

SITE MANAGEMENT:

Land use history: No known dredging. Western portion of beach is used for swimming and sunbathing. Eastern end is rarely used, has remnants of old water fountains and concrete structure. South of beach is brick sidewalk and old playground. Nightly use of Jones Beach Marine Theater June through August.
Protection: Nest site fenced and posted by TNC stewards.
Positive aspects: New site for plovers in 1989.
Threats: Expansion of bathing beach may force birds into unsuitable (over-vegetated) habitat to east.
Recommendations: Limit bathers to westernmost portion of beach. Reduce cover of vegetation (grass) on eastern portion.
Contacts: Dr. Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289. Long Island Chapter of The Nature Conservancy, 250 Lawrence Hill Road, Cold Spring Harbor, NY 11724, (516) 367-3225.

Middle Line Island

SEE MAP NO. 10

LOCATION:

County, Town, Locality: Nassau, Hempstead.
Map Quad: West Gilgo Beach, 4007354.
Directions: North of Jones Beach State Park.
Owner: Town of Hempstead.
Significant coastal habitat: South Oyster Bay.

SPECIES USE:

Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	238	226	122	280	352	532	418	335

Comments: Subcolonies include Black Banks Island and South Line Islands.

SITE MANAGEMENT:

Land use history: Sewer outfall line extends diagonally through the east sector of the island.
Protection: Periodic patrols.
Positive aspects: Sections of sewer outfall backfill have been beneficial to shorebirds for feeding.
Threats: Predation and flooding are current threats; pets are a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Neds Island

SEE MAP NO. 10

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Amityville, 4007364.
Directions: South of Seaford.
Owner: Town of Hempstead.
Significant coastal habitat: South Oyster Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	50	184	140	56	68	108	210

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

North Line Island

SEE MAP NO. 10

LOCATION:
County, Town, Locality: Nassau, Hempstead.
Map Quad: Amityville, 4007364.
Directions: North of Long Beach, west of Lawson Blvd.
Owner: Town of Hempstead.
Significant coastal habitat: South Oyster Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	68	90	88	100	76	30	12	4
BS	-	-	8	10	0	0	0	0

Comments:

SITE MANAGEMENT:
Land use history: Dredge material resulting from sewer outfall construction on south corner.
Protection: Posted.
Positive aspects: Sand deposits from sewer outfall construction has been beneficial to shorebirds for feeding.
Threats: Flooding is a potential threat.
Recommendations:
Contacts: John Zarudsky, Department of Conservation and Waterways, Town of Hempstead, P.O. Box J, Lido Blvd., Point Lookout, NY 11569, (516) 431-9200.

Tilted Log Island

SEE MAP NO. 11

LOCATION:
County, Town, Locality: Nassau, Oyster Bay.
Map Qu[illegible] [illegible]o Beach, 4007354.
Directions: East of Wa[illegible]h State Parkway, north of Ocean Parkway.
Owner: Town of Oyster Ba[illegible].
Significant coastal habitat: South Oyster Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	0	0	0	196	93	-

Comments: Colony located on marsh adjacent to Amity channel. Colony not surveyed prior to 1987.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Islands NW of Tobay Tower

SEE MAP NO. 11

LOCATION:
County, Town, Locality: Nassau, Oyster Bay.
Map Quad: West Gilgo Beach, 4007354.
Directions: East of Wantaugh State Parkway, north of Ocean Parkway, soutwest of Babylon.
Owner: Town of Oyster Bay.
Significant coastal habitat: South Oyster Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	0	60	75	60	90	15

Comments: Site consists of east and west subcolonies.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: East subcolony - none. West subcolony - patrolled.
Positive aspects: West subcolony visited every other day by researchers from NAS Scully Science Center.
Threats: Flooding is a current threat; predation and pets are potential threats.
Recommendations:
Contacts: Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Jones Beach Parking Lot 9

SEE MAP NO. 11

LOCATION:

County, Town, Locality: Nassau, Oyster Bay, Jones Beach.

Map Quad: West Gilgo Beach, 4007354.

Directions: Located on south shore of Jones Beach Island, 1 mile southeast of Guggenheim Pond on a defunct parking lot that once serviced Jones Beach users.

Owner: NYS Office of Parks, Recreation, and Historic Preservation (Jones Beach State Park).

Significant coastal habitat: Parking Lot 9, Jones Beach State Park.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand and sand/asphalt.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	7	2	2	2	2	2	3
LT	150	77	0	0	30	78	49	96

Comments: Least terns nest on patches of sand usually adjacent to stems of beach grass that are protruding through cracks in the asphalt. Piping plovers and a few least terns also nest on the beach and dunes adjacent to the parking lot.

SITE MANAGEMENT:

Land use history: This used to be an active parking lot.

Protection: String-fenced, posted and monitored by TNC and Audubon. Volunteers coordinated by TNC.

Positive aspects: Good productivity by least terns. Good predictability of nesting activity between years. Relatively low recreational use due to remote location (all foot traffic).

Threats: Recreation (site established as a nude, gay beach) receives steady use, although not as intense as at other Jones Beach locations.

Recommendations: Continue to monitor and protect the colony as birds arrive. Maintain as part of Parking Lot 9, Jones Beach State Park significant coastal habitat. Educate the public about beach-nesting birds.

Contacts: Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Islands East of West Island

SEE MAP NO. 12

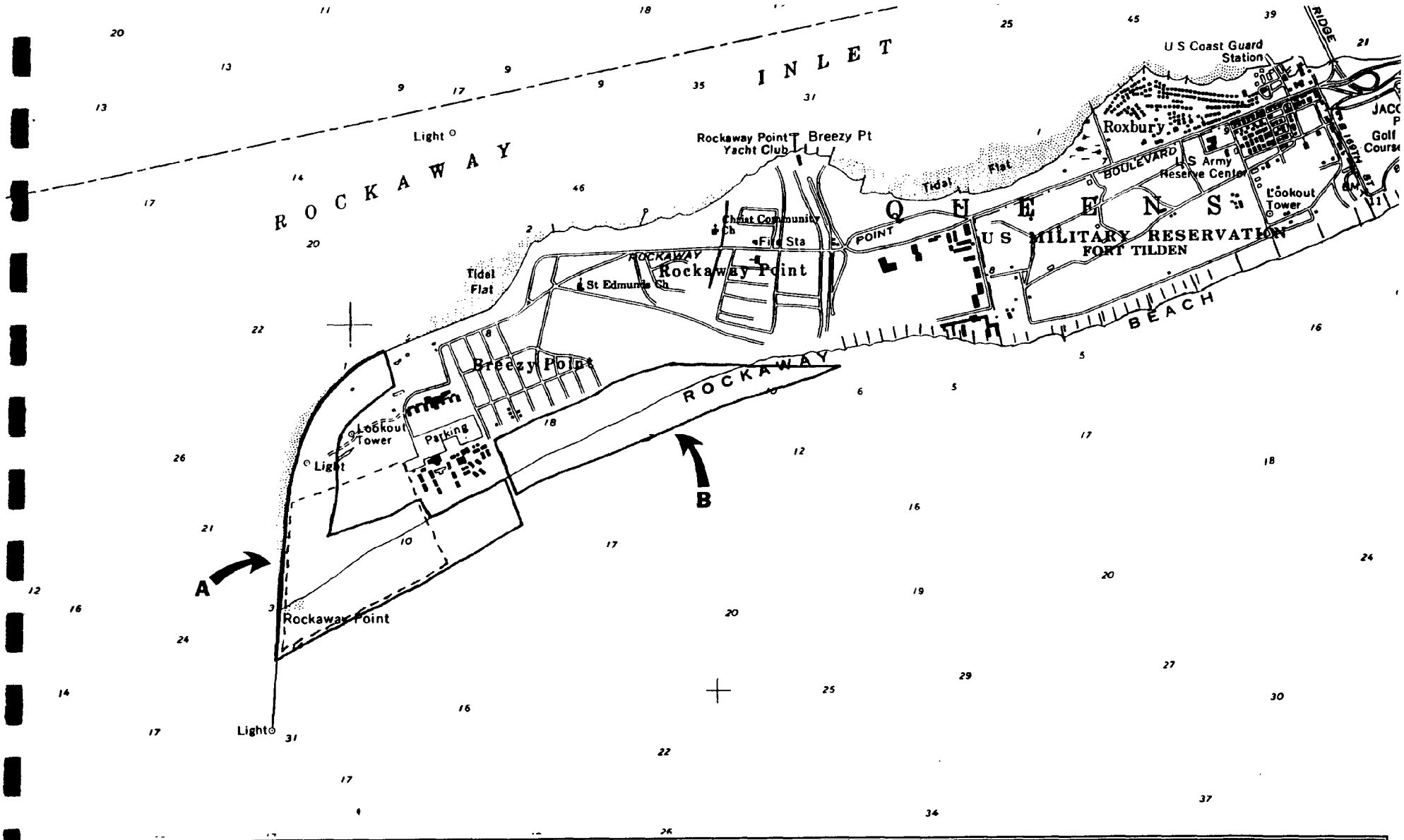
LOCATION:
County, Town, Locality: Nassau, Oyster Bay.
Map Quad: Amityville, 4007364.
Directions: South of Amityville section of Montauk Highway.
Owner: Town of Oyster Bay.
Significant coastal habitat: South Oyster Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-shrub-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	372	278	600	414	418	145

Comments: Two subcolonies: east islands and southeast subcolony.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: East islands are patrolled; southeast subcolony - none.
Positive aspects:
Threats: Flooding is a current threat; predation and pets are potential threats.
Recommendations:
Contacts: Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

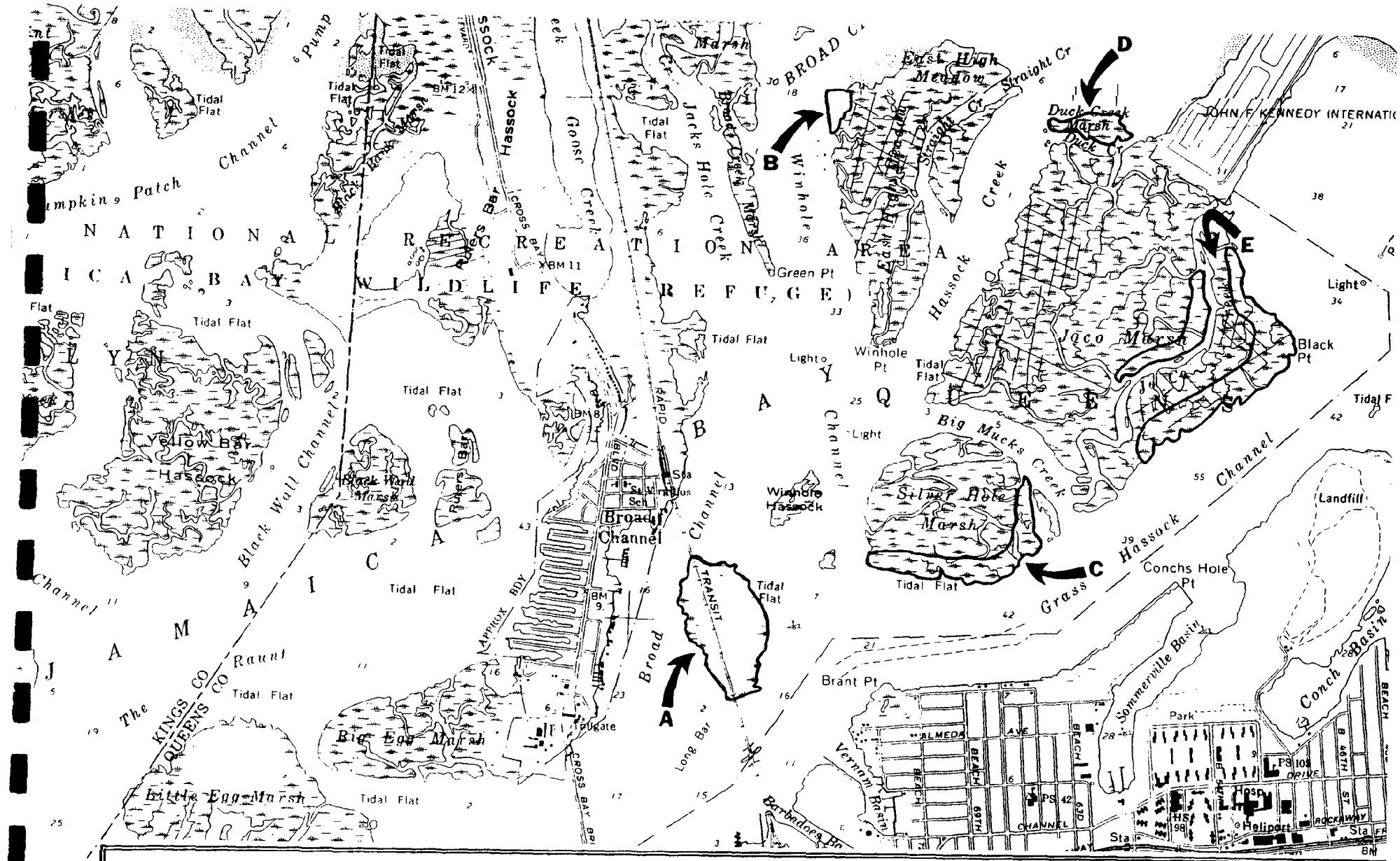


MAP NO. 1 NEW YORK CITY / QUEENS

A: BREEZY POINT NPS **B: BREEZY POINT COOP**

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Map No. 2 New York City / Queens

A: SUBWAY ISLAND

B: EAST HIGH MEADOW

C: SILVER HOLE MARSH

D: DUCK CREEK MARSH

E: JO CO MARSH

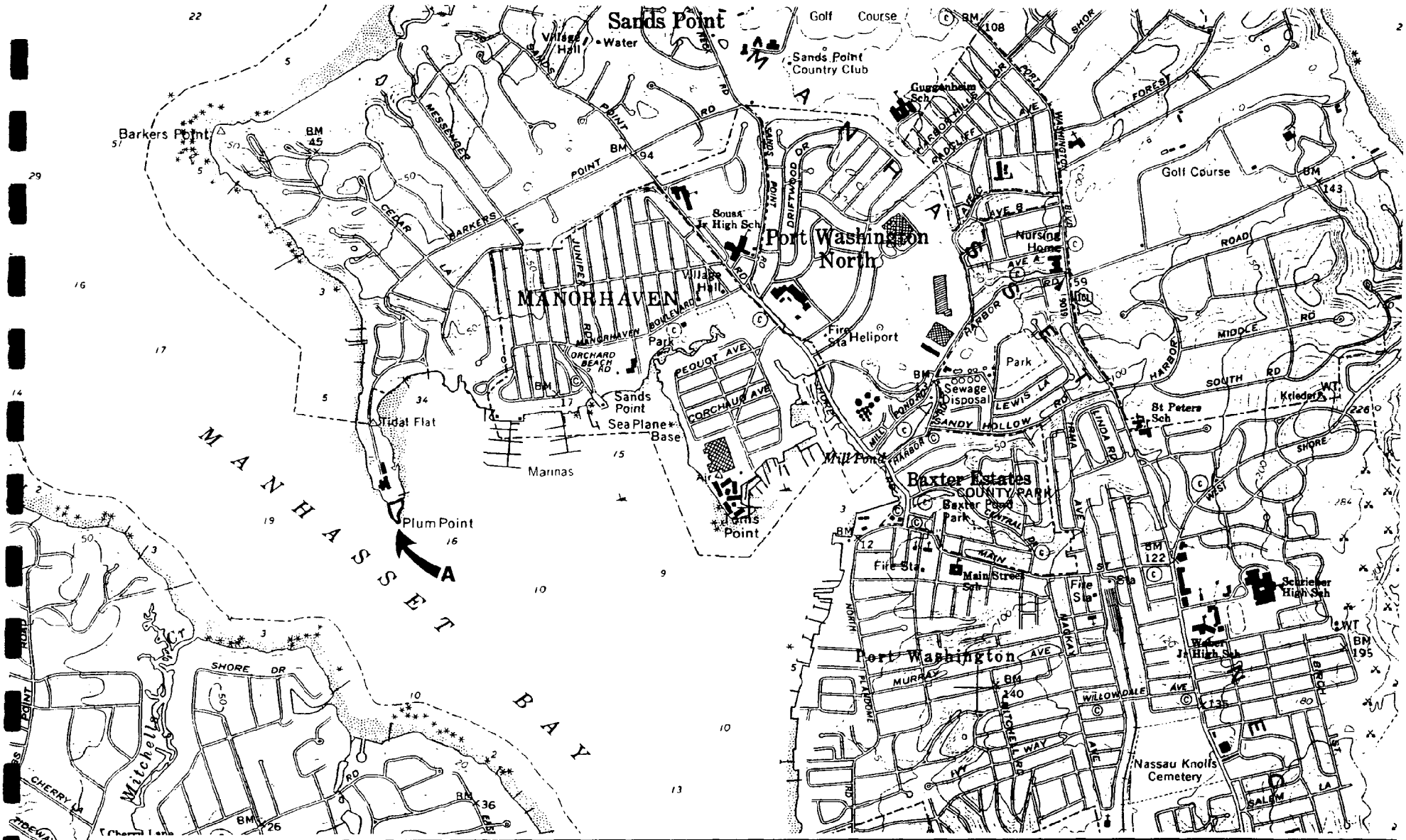
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



MAP NO. 3 TOWN OF NORTH HEMPSTEAD

A: PLUM POINT

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

Map No. 4 Town of Hempstead

A: SIVER POINT JETTY

B: OCEAN BEACH CLUB

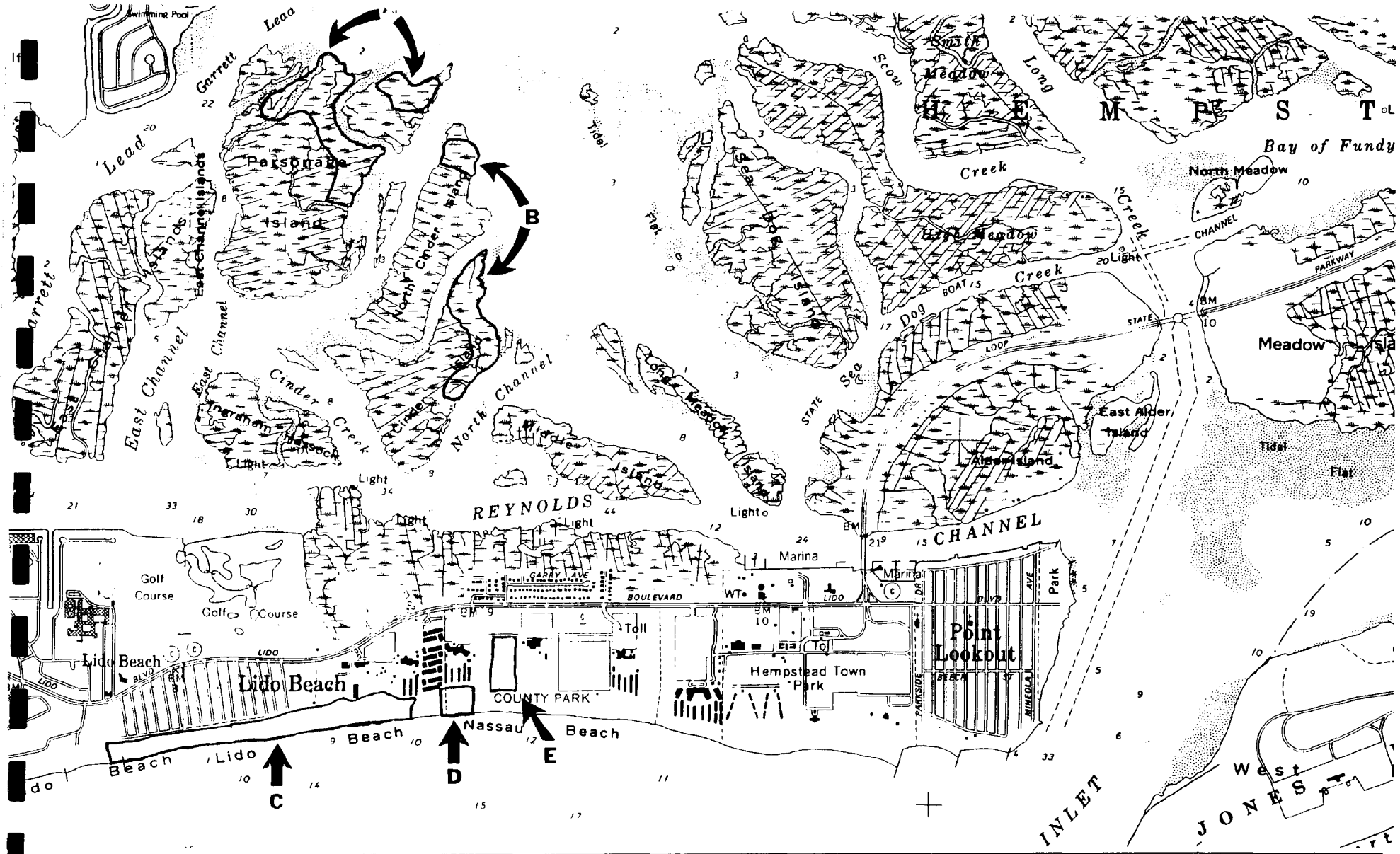
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



Map No. 5 Town of Hempstead

A: GULL ISLAND

B: NORTH CINDER ISLAND

C: LIDO BEACH TOWN PARK

D: LIDO BEACH TOWNHOUSE

E: NASSAU BEACH

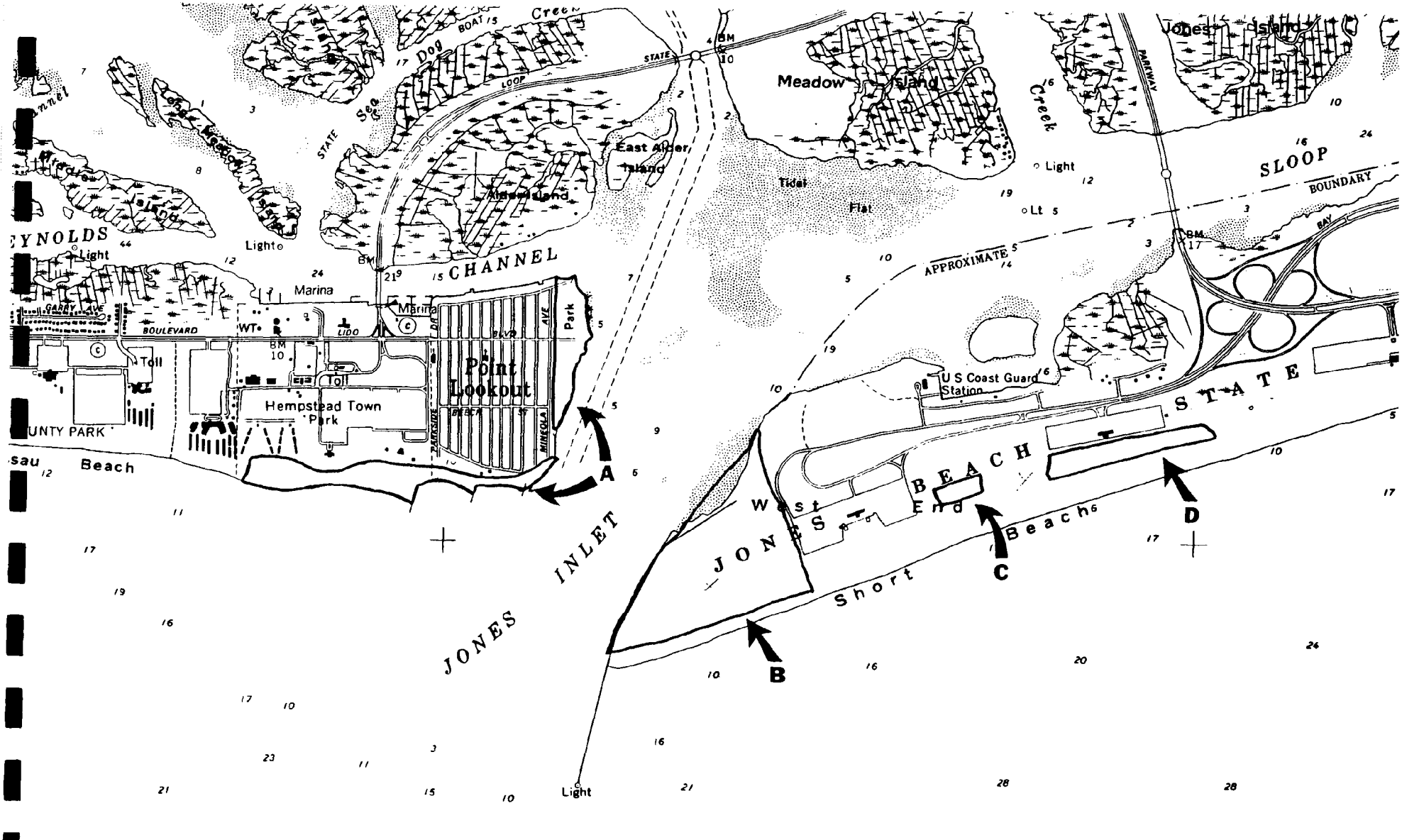
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



Map No. 6 Town of Hempstead

A: POINT LOOKOUT

B: SHORT BEACH WEST END

C: SHORT BEACH WEST END 1

D: SHORT BEACH WEST END 2

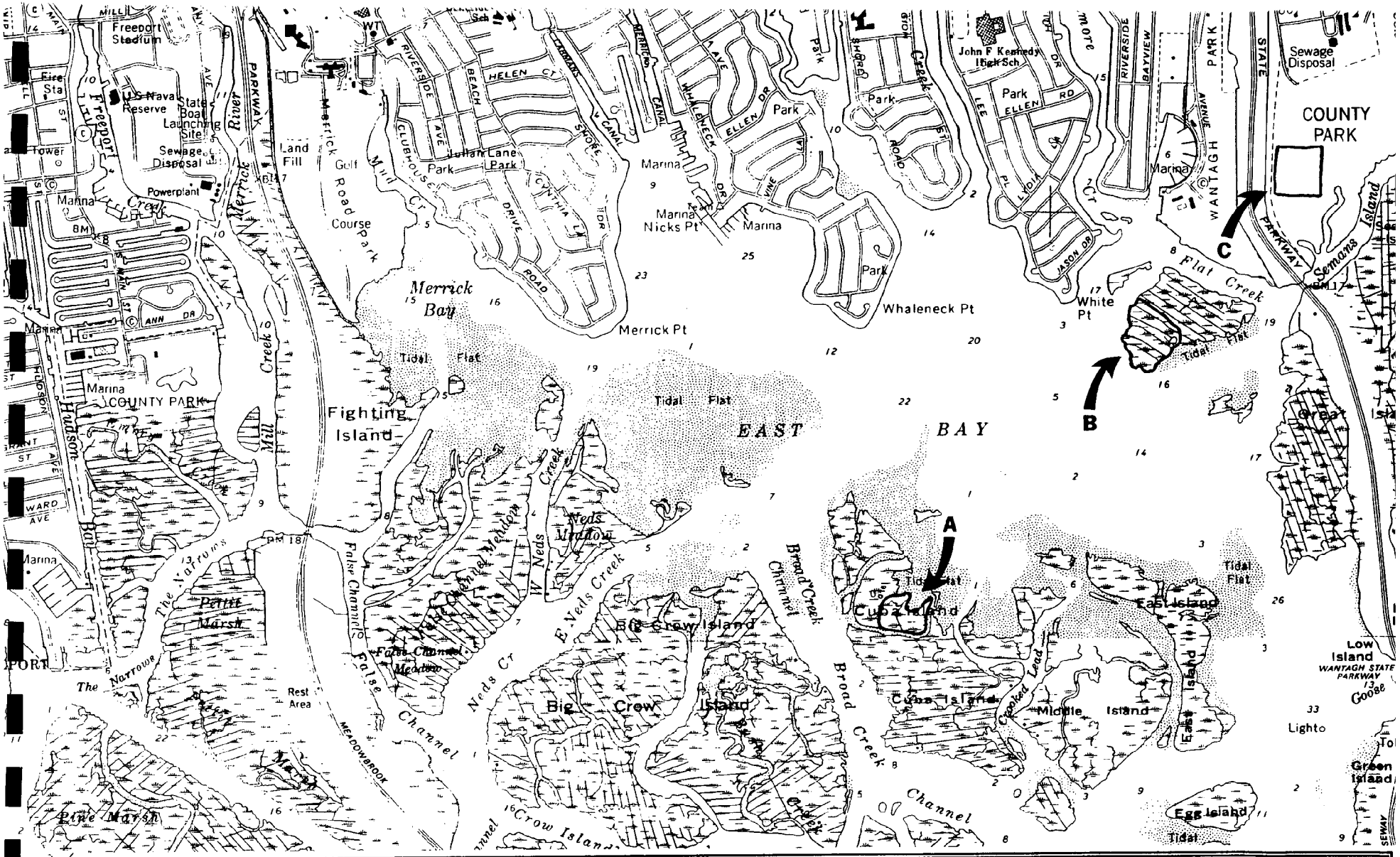
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



MAP NO. 7 TOWN OF HEMPSTEAD

A: CUBA ISLAND

B: OLIVERS ISLAND

C: CEDAR CREEK PARK

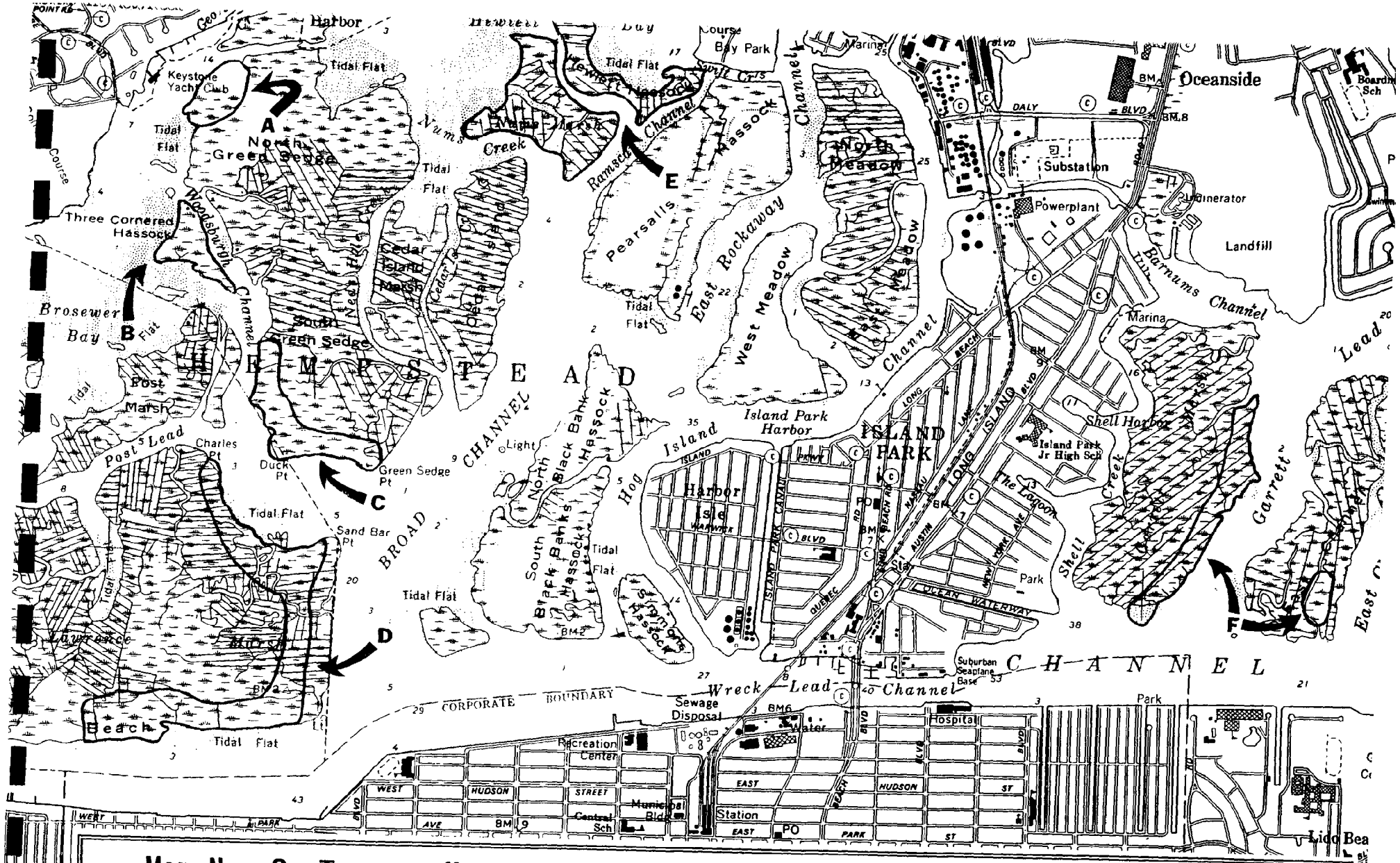
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



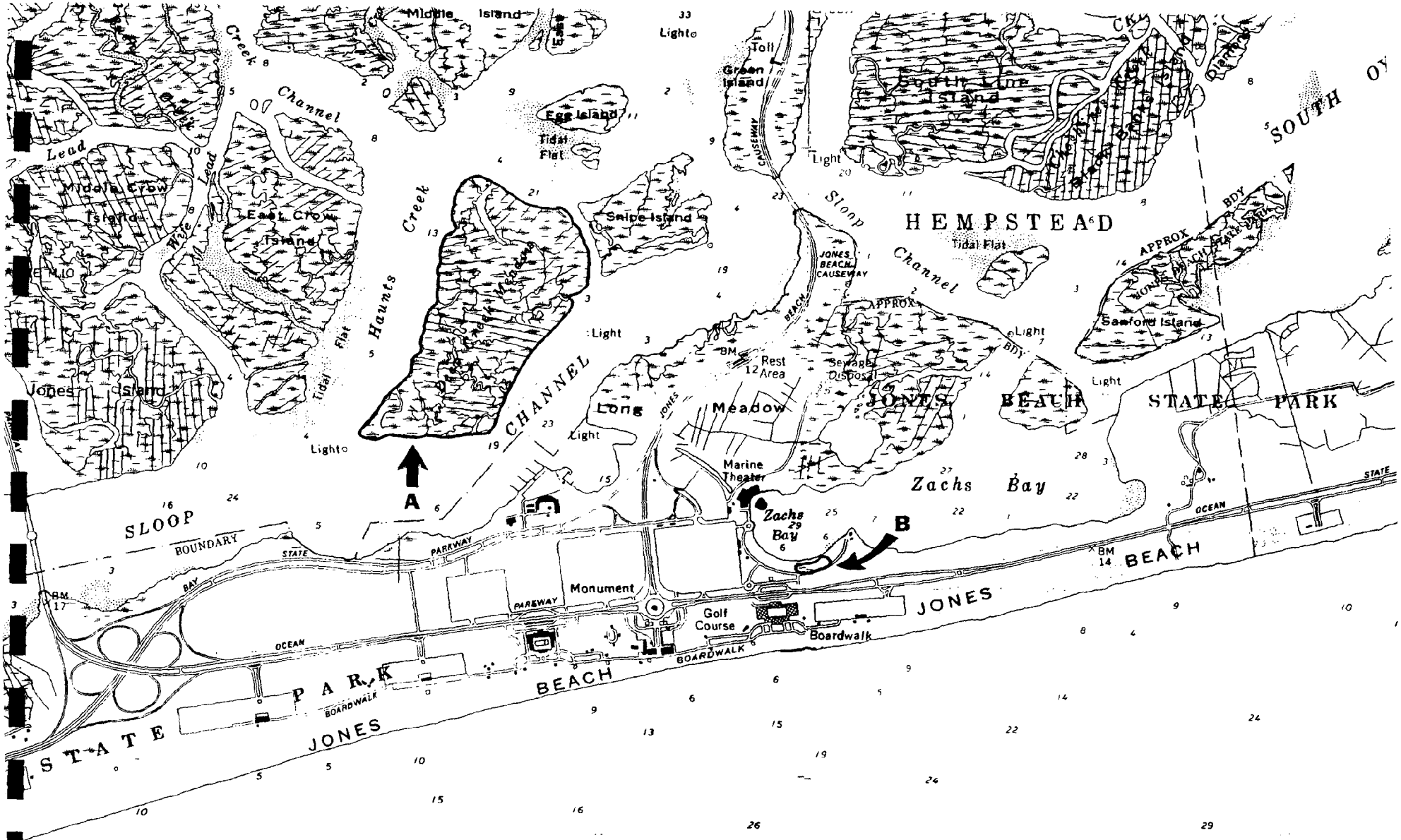
Map No. 8 Town of Hempstead

A: NORTH GREEN SEDGE ISLAND C: SOUTH GREEN SEDGE ISLAND E: PEARSALLS HASSOCK

B: THREE-CORNERED HASSOCK D: LAWRENCE MARSH F: EAST CHANNEL ISLANDS

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

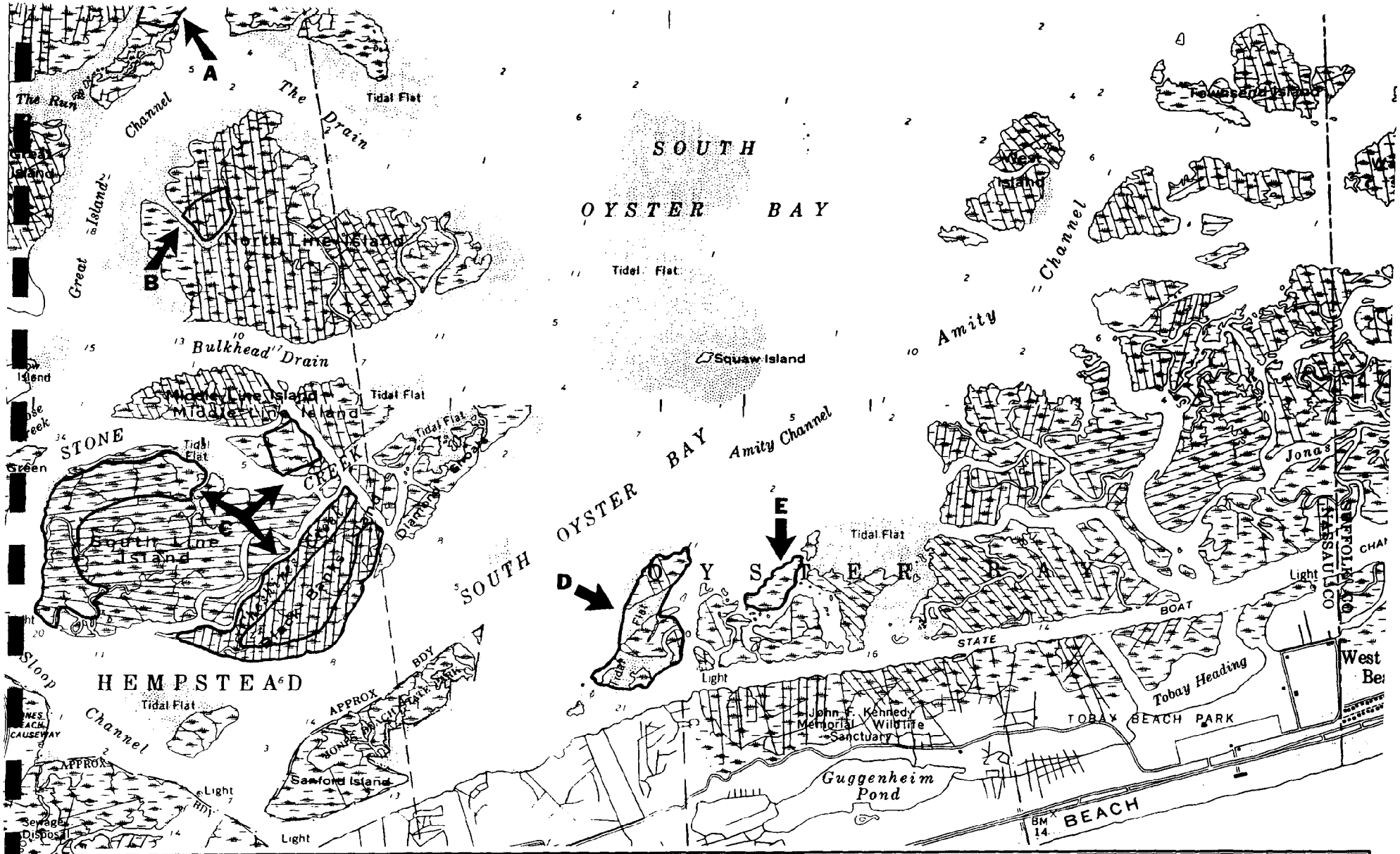


MAP NO. 9 TOWN OF HEMPSTEAD

A: DEEP CREEK MEADOW B: ZACHS BAY

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Map No. 10 Town of Hempstead

A: NEDS ISLAND

B: NORTH LINE ISLAND

C: MIDDLE LINE ISLAND

D: (See Map No. 11)

E: (See Map No. 11)

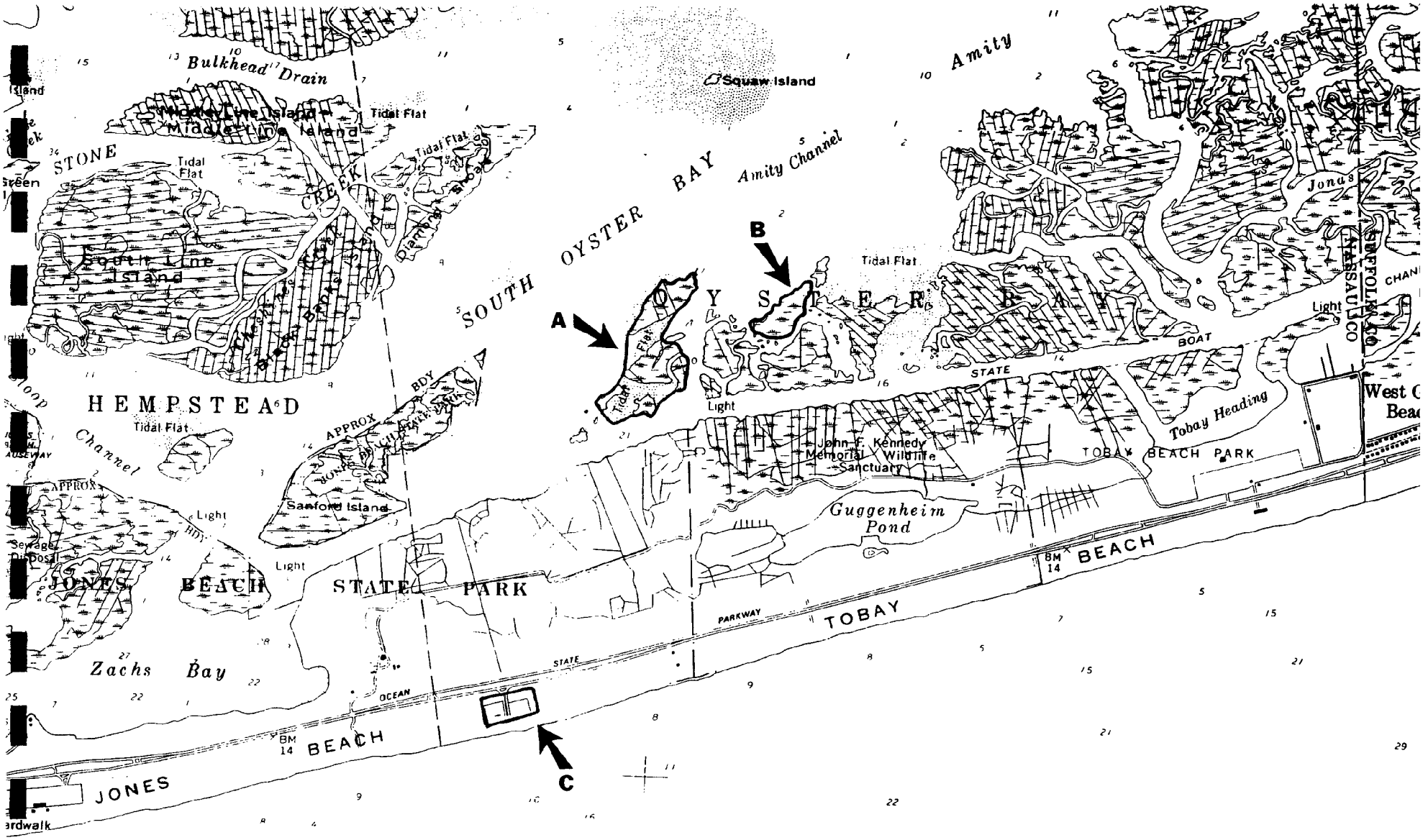
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

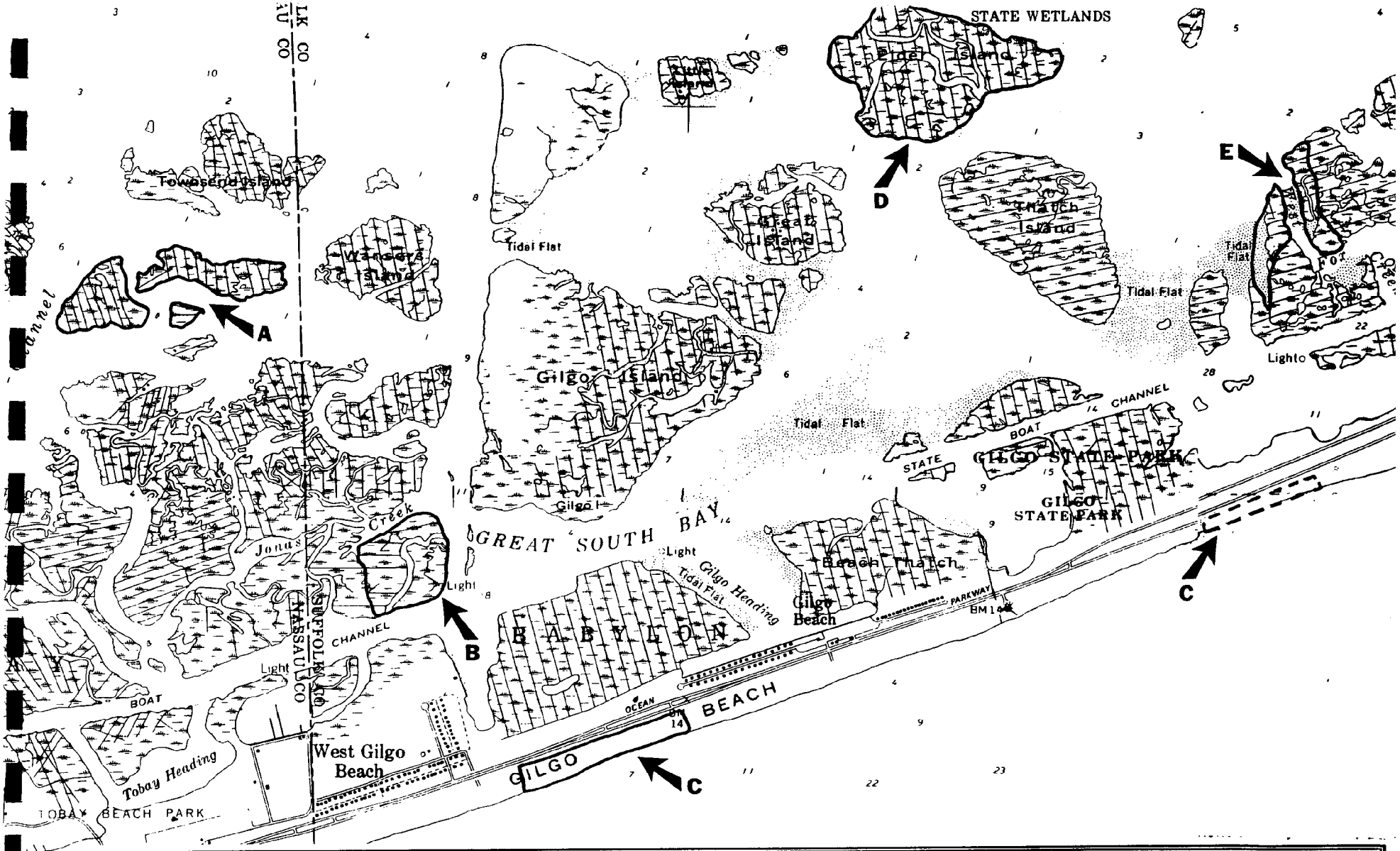


MAP NO. 11 TOWN OF OYSTER BAY

A: ISLANDS NW OF TOBAY TOWER B: TILTED LOG ISLAND C: JONES BEACH PARKING LOT 9

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Map No. 12 Town of Oyster Bay

A: ISLANDS EAST OF WEST ISLAND

B: (See Map No. 13)

C: (See Map No. 13)

D: (See Map No. 13)

E: (See Map No. 13)

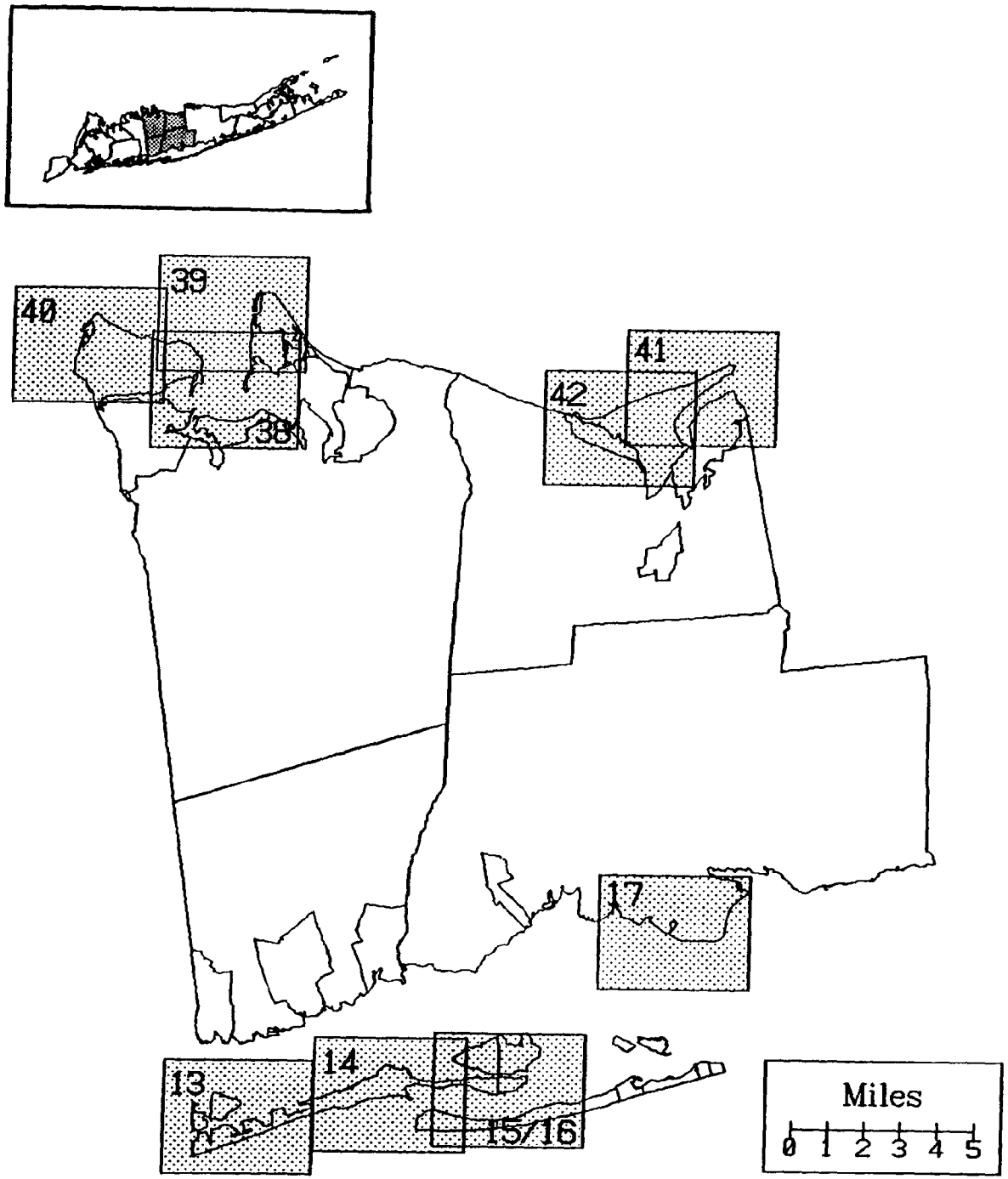
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



Municipalities

Babylon

Islip

Huntington

Smithtown

BABYLON

Map No. 13
Gilgo Beach 85
West Fox Creek 86
Elder Island 87
West Gilgo Beach 88

Map No. 14
Cedar Beach Babylon 89
Overlook Beach 90
Oak Beach Sore Thumb 91
Democrat Point 92

Map No. 15
Seganus Thatch Island 93

ISLIP

Map No. 16
Captree Island 94
Robert Moses Field 5 95

Map No. 17
Heckscher State Park Field 6 96
Heckscher State Park Field 8 97
Seatuck National Wildlife Refuge 98
East Islip Marina 99

HUNTINGTON

Map No. 38
Sand City 100

Map No. 39
Eatons Neck Point 101

Map No. 40
Caumsett State Park 102

SMITHTOWN

Map No. 41
Long Beach Point 103
Long Beach Marina 104
Long Beach Boat Launch 105
Youngs Island 106

Map No. 42
Short Beach 107

Gilgo Beach

SEE MAP NO. 13

LOCATION:

County, Town, Village: Suffolk, Babylon, Gilgo Beach.

Map Quad: West Gilgo Beach, 4007354.

Directions: Located on the south shore of Jones Beach Island, opposite Gilgo Island of Great South Bay, about 12 miles west of Robert Moses Causeway, south of Ocean Parkway, about 2 miles west of Gilgo State Park.

Owner: Town of Babylon.

Significant coastal habitat: Not designated, about 1 1/4 miles west of the Gilgo Beach significant coastal habitat.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	4	4	2	2	4	6	3
LT	30	41	25	35	54	109	46	168

Comments: The location of this site is not particularly predictable. In past years, including 1987, the birds nested further east than they did in 1988.

SITE MANAGEMENT:

Land use history: No known dredging, but probably will be used for future spoil deposition.

Protection: String-fenced, posted and monitored by TNC and Audubon. Volunteers also coordinated by TNC.

Positive aspects: Relatively low recreational use due to remote location, but in some years, when beach is very narrow, recreational users cause severe disturbance to birds and vandalize fences. Good productivity of least terns in some years.

Threats: Beach erosion, flooding, recreation (narrowness of the beach makes the colony susceptible to even low levels of recreation), ORV traffic and pets (dogs).

Recommendations: Expand the Gilgo Beach significant coastal habitat to include this site. Continue to monitor and protect colony as birds arrive. Enforce ORV restrictions and limit speeds. Restrict pets and educate owners, residents, public, and ORV users about beach-nesting birds.

Contacts: Seatuck Research Program, P. O. Box 31, Islip, NY 11751, (516) 581-6908. Dr. Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

West Fox Creek

SEE MAP NO. 13

LOCATION:
County, Town, Locality: Suffolk, Babylon.
Map Quad: Bay Shore West, 4007363.
Directions: North of Ocean Parkway, slightly west of Robert Moses Twin Causeway.
Owner: Unknown.
Significant coastal habitat: Great South Bay West.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	0	0	0	282	70	-

Comments: New site in 1987. Terns nest on narrow line of wrack running along periphery of island.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Unknown.
Positive aspects: Island visited every other day by researchers from NAS Scully Science Center.
Threats: Flooding and predation are potential threats.
Recommendations:
Contacts: Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Elder Island

SEE MAP NO. 13

LOCATION:
County, Town, Locality: Suffolk, Babylon.
Map Quad: Amityville, 4007364.
Directions: Slightly east of southern termination of Nassau/Suffolk County line.
Owner: Town of Babylon.
Significant coastal habitat: Great South Bay West.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	0	30	37	58	80	47	20

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a potential threat.
Recommendations:
Contacts: Seatuck Research Program, PO Box 31, Islip, NY 11751, (516) 581-6908.

West Gilgo Beach

SEE MAP NO. 13

LOCATION:
County, Town, Locality: Suffolk, Babylon.
Map Quad: West Gilgo Beach, 4007354.
Directions: Just north of village of West Gilgo Beach.
Owner: NYS Department of Environmental Conservation.
Significant coastal habitat: South Oyster Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	124	43	45	38	18	15

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a current threat; predation, pets, and vandalism are potential threats.
Recommendations:
Contacts: Seatuck Research Program, P.O. Box 31, Islip, NY 11751, (516) 581-6908. Michael Scheibel, NYS Dept. of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Cedar Beach Babylon

SEE MAP NO. 14

LOCATION:
County, Town, Locality: Suffolk, Babylon, Cedar Beach Town Park.
Map Quad: Bay Shore West, 4007363.
Directions: Located 4 miles west of Robert Moses Causeway, via Ocean Parkway, on south shore of Jones Beach Island bordering Atlantic Ocean.
Owner: Town of Babylon.
Significant coastal habitat: Cedar Beach.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	6	0	10	4	10	12	8	4
LT	0	0	0	0	0	10	0	0
CT	6000	7000	11000	12000	10000	13018	8606	9954
RT	15	15	140	200	200	200	174	104
BS	260	350	400	400	450	240	216	212

Comments: At a site approximately 1 mile west of Cedar Beach, 15 least terns nested in 1982, and 6 least terns and 2 piping plovers nested in 1984.

SITE MANAGEMENT:
Land use history: The entire site is dredge spoil.
Protection: Snow-fenced and posted by Town of Babylon. Monitored by National Audubon Society.
Positive aspects: Owned and managed by Town of Babylon. Subject of long-term research on colonial waterbirds by Carl Safina of National Audubon Society.
Threats: Predation (gulls). Occasional disturbance from nearby bathing beach and ORVs.
Recommendations: Maintain as Cedar Beach significant coastal habitat, and expand to include nesting area for least terns and piping plovers west of Cedar Beach. Continue to monitor and protect the colony as birds arrive. Educate the public about beach-nesting birds.
Contacts: Carl Safina, National Audubon Society, Scully Science Center, 306 South Bay Ave., Islip, New York 11751, (516) 277-4289.

Overlook Beach

SEE MAP NO. 14

LOCATION:

County, Town, Locality: Suffolk, Babylon, Cedar Beach Overlook.

Map Quad: Bay Shore West, 4007363.

Directions: Located 3 1/2 miles west of Robert Moses Causeway, via Ocean Parkway, on south shore of Jones Beach Island, south of landlocked channel of brackish water on beach bordering Atlantic Ocean.

Owner: Town of Babylon.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	0	4	5
LT	-	-	-	-	-	-	38	51
CT	-	-	-	-	-	-	-	9
BS	-	-	0	0	0	0	0	2

Comments:

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String-fenced, posted and monitored by TNC and Town of Babylon. Volunteers coordinated by TNC.

Positive aspects: Owned and managed by Town of Babylon. Relatively low recreational use.

Threats: Flooding and ORVs.

Recommendations: Expand Cedar Beach significant coastal habitat to include site. Continue to monitor and protect the colony as birds arrive. Enhance site with proper deposition of dredge spoil. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.

Contacts: Ken Feustal, Town of Babylon, 190 Farmers Ave., Lindenhurst, NY 11757, (516) 422-7640. Dave Mizrahi, 9 Northcote Rd., Westbury, NY 11590, (516) 334-4398. John Fritz, 290 W. 3rd St., Deer Park, NY 11729, (516) 242-2539.

Oak Beach Sore Thumb

SEE MAP NO. 14

LOCATION:

County, Town, Area: Suffolk, Babylon, Oak Beach.
Map Quad: Bay Shore West, 4007363.
Directions: Located 2 1/2 miles west of Robert Moses Causeway, on south shore of Jones Beach Island.
Owner: Town of Babylon.
Significant coastal habitat: Sore Thumb.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	1	2	6	1	0	0	0
LT	3	55	560	412	0	0	0	0

Comments: Colony abandoned in 1986 due to disturbance from heavy ORV use.

SITE MANAGEMENT:

Land use history: Unknown.
Protection: Monitored by TNC. Town of Babylon, at request of National Audubon, routed ORVs around nesting area and posted site in early 1984. Protection was very successful; colony was largest in the region that year. Crow and gull predation was heavy, however, and was so severe in 1985 that the site was not subsequently recolonized.
Positive aspects: Owned and managed by Town of Babylon. Good habitat for piping plovers and least terns.
Threats: ORV traffic and gull and crow predation.
Recommendations: Maintain as Sore Thumb significant coastal habitat. Continue to monitor and protect colony as birds arrive. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.
Contacts: Dr. Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Democrat Point

SEE MAP NO. 14

LOCATION:
County, Town, Locality: Suffolk, Babylon, Fire Island.
Map Quad: Bay Shore West, 4007363.
Directions: Western tip of Fire Island, 2 miles east of Robert Moses Causeway.
Owner: NYS Office of Parks, Recreation, and Historic Preservation (Robert Moses State Park).
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	4	4	4	5	8
LT	-	-	-	-	-	-	-	2

Comments:

SITE MANAGEMENT:
Land use history: No known dredging.
Protection: String-fenced, posted, and monitored by TNC under permits granted to Carl Safina of National Audubon.
Positive aspects: Owned and managed by New York State Parks. Relatively low recreational use due to remote location.
Threats: ORV traffic.
Recommendations: Designate as significant coastal habitat area. Continue to monitor and protect nest sites as birds arrive. Restrict ORV use or limit speeds. Educate ORV users about beach-nesting birds.
Contacts: Dr. Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Seganus Thatch Island

SEE MAP NO. 15

LOCATION:
County, Town, Locality: Suffolk, Babylon.
Map Quad: Bay Shore West, 4007363.
Directions: Northwest of Robert Moses Twin Causeway/Ocean Parkway intersection.
Owner: Town of Babylon.
Significant coastal habitat: Great South Bay West.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Shrub-sand-grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimted in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	560	550	1575	716	73	0

Comments: Two subcolonies: marsh island subcolony, which consists of 6 separate marsh islands, and subcolony 1.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding and predation are potential threats; recreation and pets are potential threats.
Recommendations:
Contacts: Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Captree Island

SEE MAP NO. 16

LOCATION:
County, Town, Locality: Suffolk, Islip.
Map Quad: Bay Shore East, 4007362.
Directions: Intersected by southern part of Robert Moses Twin Causeway.
Owner: LI State Parks Commission, Captree State Boat Basin.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Barrier and non-barrier islands.
Nest substrate: Grass/sedge/rush/herb.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	12	40	50	28	540	20

Comments: Two subcolonies: boat basin subcolony and marsh island subcolony, a small marsh island in the state boat channel.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Marsh island subcolony - none. Boat basin subcolony - posted and patrolled.
Positive aspects: Owned by LI State Parks Commission.
Threats: Flooding, predation, pets, vandalism, and recreation are potential threats.
Recommendations:
Contacts: Anne Ducy-Ortiz, Seatuck Research Program, PO Box 31, Islip, NY 11751, (516) 581-6908.

Robert Moses Field 5

SEE MAP NO. 16

LOCATION:

County, Town, Locality: Suffolk, Islip, Fire Island.
Map Quad: Bay Shore East, 4007362.
Directions: Within Robert Moses State Park, on south shore of Fire Island, about 1 1/4 mi. east of Robert Moses Causeway.
Owner: NYS Office of Parks, Recreation, and Historic Preservation (Robert Moses State Park).
Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	-	0	0	0	4	6	0
LT	0	0	0	0	0	28	57	0

Comments: Colony did poorly in 1988, probably due to lack of buffer from recreation.

SITE MANAGEMENT:

Land use history: No known dredging. Recreational bathing beach.
Protection: String-fenced, posted and monitored by TNC, under permits granted to Dr. Carl Safina of National Audubon.
Positive aspects: Owned and managed by New York State Parks. ORV use light, restricted to official vehicles.
Threats: Recreation (foot traffic).
Recommendations: Expand Great South Bay West significant coastal habitat to include this site. Continue to monitor and protect the colony as birds arrive. Obtain permission from Robert Moses State Park to provide sufficient buffer from recreation. Monitor ORV use and limit speeds. Educate the public and ORV users about beach-nesting birds.
Contacts: Dr. Carl Safina, National Audubon Society, 306 S. Bay Ave., Islip, NY 11751, (516) 277-4289.

Heckscher State Park Field 6

SEE MAP NO. 17

LOCATION:

County, Town, Locality: Suffolk, Islip, East Islip.

Map Quad: Bay Shore East, 4007362.

Directions: On south shore of Long Island, in East Islip, at south end of Heckscher spur of Southern Parkway. Site at Field 6 along the eastern shore of the boat channel, opposite a group picnic area.

Owner: NYS Office of Parks, Recreation, and Historic Preservation (Heckscher State Park).

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Dredge spoil deposition area, mainland.

Nest substrate: Sand/spoil.

History: The following numbers of adult least terns were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	-	0	0	0	0	10	5	12

Comments:

SITE MANAGEMENT:

Land use history: Unknown.

Protection: String-fenced, posted and monitored by TNC.

Positive aspects: Owned and managed by New York State Parks.

Threats: Advancing vegetational succession, predation (fox, raccoon) and recreation.

Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Enhance site with proper deposition of dredge spoil. Manage vegetation for optimal least tern nesting. Implement predator control. Educate the public about beach-nesting birds.

Contacts: F.P. O'Neil, Superintendent, Heckscher State Park, P.O. Box 153, East Islip, New York 11730, (516) 581-2100.

Heckscher State Park Field 8

SEE MAP NO. 17

LOCATION:

County, Town, Locality: Suffolk, Islip, East Islip.

Map Quad: Bay Shore East, 4007362.

Directions: On south shore of Long Island, in East Islip, at southern end of Hecksher spur of Southern Parkway. Site at Field 8 is on south shore, east of parking lot 8, in a field adjacent to the beach, on the southeast corner of the Hecksher peninsula.

Owner: NYS Office of Parks, Recreation and Historic Preservation (Heckscher State Park).

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Dredge spoil deposition site, mainland.

Nest substrate: Sand/spoil.

History: The following numbers of adult least terns were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	0	0	0	0	35	0	0

Comments: In 1987 only 3 nests were located, so most of the birds observed then were not nesters.

SITE MANAGEMENT:

Land use history: Unknown.

Protection: String-fenced, posted and monitored by TNC in 1987. Monitored by TNC in 1988.

Positive aspects: Owned and managed by New York State Parks.

Threats: Advancing vegetational succession, recreation (Long Island Greenbelt Trail routed through site) and ORV traffic.

Recommendations: Designate as significant coastal habitat area. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern nesting. Reroute hiking trail away from the site for the nesting season. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.

Contacts: F.P. O'Neil, Superintendent, Heckscher State Park, P.O. Box 153, East Islip, NY 11730, (516) 581-2100.

Seatuck National Wildlife Refuge

SEE MAP NO. 17

LOCATION:
County, Town, Locality. Suffolk, Islip, Islip.
Map Quad: Bay Shore East, 4007362
Directions: On south shore of Long Island, in town of Islip, at south end of South Bay Ave., adjacent to Great South Bay.
Owner: US Fish and Wildlife Service (Seatuck National Wildlife Refuge).
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Dredge spoil deposition site.
Nest substrate: Sand/spoil.
History: The following numbers of least terns were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	0	0	0	10	0	0	0

Comments:

SITE MANAGEMENT:
Land use history: The Champlin Creek dredging project (19) benefits town boat slips, with 82 slips. Spoil was deposited on this upland site as follows:

	1957	1980	1984	1987
Cubic yards	122200	10300	12500	5000

Protection: Monitored by Seatuck Research Program.
Positive aspects: Owned and managed by U.S. Fish and Wildlife Service.
Threats: Advancing vegetational succession.
Recommendations: Expand Champlin Creek significant coastal habitat to include site. Continue to monitor and protect colony as birds arrive. Manage vegetation for optimal least tern nesting.
Contacts: Seatuck Research Program, P.O. Box 31, Islip, NY 11751, (516) 581-6908. Refuge Manager, Wertheim National Wildlife Refuge, Shirley, NY 11967, (516) 286-0485.

East Islip Marina Site

SEE MAP NO. 17

LOCATION:

County, Town, Locality: Suffolk, Islip, East Islip.

Map Quad: Bay Shore East, 4007362.

Directions: In East Islip, at the southern end of Bay View Ave. Site is located at west side of mouth of Quintuck Creek. Least terns have nested on dredge spoil around shallow pond behind baseball diamond, and sometimes loaf on small bathing beach.

Owner: Town of Islip.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Dredge spoil deposition site.

Nest substrate: Sand/spoil.

History: The following numbers of adult least terns were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	17	0	6	10	0	0	0

Comments:

SITE MANAGEMENT:

Land use history: Dredging from the Moorings project (I30) benefits salt water pool at town bathing beach. Spoil was deposited at upland site and mostly removed by truck, and at town beach, as follows:

	1976	1980	1982	1983	1989
Cubic yards	2000	4500	2600	1400	3200*

* Deposited at town beach.

Protection: Monitored by TNC.

Positive aspects: Owned and managed by Town of Islip. Vehicle access to town residents only, through kiosk.

Threats: Advancing vegetational succession and recreation.

Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Enhance site with proper depostion of dredge spoil. Manage vegetation for optimal least tern nesting. Educate the public and area residents about beach-nesting birds.

Contacts: Seatuck Research Program, P.O. Box 31, Islip, New York 11751, (516) 581-6908.

Sand City

SEE MAP NO. 38

LOCATION:

County, Town, Locality: Suffolk, Huntington, Eatons Neck.
Map Quad: Lloyd Harbor, 4007384.
Directions: Site is the southwestern sand spit of Eatons Neck that extends out into Northport Bay, just south of Hobart Town Beach.
Owner: Town of Huntington.
Significant coastal habitat: Sand City.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand and pebble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	5	6	6	5	6	5	4
LT	-	74	330	200	225	171	4	100
CT	-	-	60	150	279	30	28	125
BS	-	-	0	0	2	2	0	0

Comments:

SITE MANAGEMENT:

Land use history: Dredge spoil was deposited at the north end of the Sand City peninsula in 1958 and again in the 60's or 70's, serving as beach nourishment for Hobart Town Beach. If dredging were planned for the future some of the spoil may be placed on colony site for enhanced nesting potential.
Protection: Permanently fenced (chain-link), posted and monitored by Huntington Audubon. Volunteers coordinated by Huntington Audubon.
Positive aspects: Permanent chain-link fence is effective. Site designated as a bird sanctuary. Owned and managed by Town of Huntington. Good predictability of nesting activity between years.
Threats: Advancing vegetational succession, recreation (boat landing) and other (suspect poor food supply in 1988).
Recommendations: Maintain as part of Sand City significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern nesting. Continue to maintain signs that restrict boat landing. Educate public about beach-nesting birds.
Contacts: Bill Kolodnicki, Director, Theodore Roosevelt Bird Sanctuary, Huntington Audubon, 132 Cove Rd., Oyster Bay, NY 11771, (516) 922-3200.

Eatons Neck Point

SEE MAP NO. 39

LOCATION:

County, Town, Locality: Suffolk, Huntington, Eatons Neck.
Quad name: Lloyd Harbor, 4007384.
Directions: Sand spit at the extreme northwestern end of Eatons Neck peninsula, about a quarter mile west of the U.S. Coast Guard Station.
Owner: Private.
Significant coastal habitat: Eatons Neck Point.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand and pebble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	4	4	4	4	3	3	4
LT	-	183	30	30	90	35	0	0
CT	-	-	2	0	0	0	0	0

Comments:

SITE MANAGEMENT:

Dredge history: None.
Protection: Permanently fenced, posted and monitored by Huntington Audubon. Volunteers coordinated by Huntington Audubon.
Positive aspects: Relatively low recreational use due to remote location. Limited access through Coast Guard Station. Owner has given permission to Huntington Audubon to protect the site.
Threats: Recreation (boat landing and Coast Guard personnel), pets (dogs from Coast Guard) and other (suspect poor food supply for least terns in 1988).
Recommendations: Maintain as Eatons Neck Point significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Continue to educate coast guard personnel about beach-nesting birds. Restrict pets and educate owners about beach-nesting birds.
Contacts: Bill Kolodnicki, Theodore Roosevelt Bird Sanctuary, Huntington Audubon Society, 132 Cove Rd., Oyster Bay, NY 11771, (516) 922-3200.

Caumsett State Park

SEE MAP NO. 40

LOCATION:

County, Town, Locality: Suffolk, Huntington, Lloyds Neck.

Quad name: Lloyd Harbor, 4007384.

Directions: The site is located on a sand spit southeast of Lloyd Point in Caumsett State Park, on Lloyds Neck peninsula, on the east side of the mouth of Oyster Bay.

Owner: NYS Office of Parks, Recreation, and Historic Preservation (Caumsett State Park).

Significant coastal habitat: Lloyd Point.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	0	4	1
LT	0	0	0	0	0	10	36	6

Comments: Seatuck name is "Lloyd Point." Two subcolonies existed. One failed due to Memorial Day crowds; the subcolony at the extreme end of the point was successful.

SITE MANAGEMENT:

Dredge history: None.

Protection: String-fenced, posted and monitored by Huntington Audubon. Volunteers coordinated by Huntington Audubon.

Positive aspects: Owned and managed by New York State Parks. Relatively low recreational use due to remote location.

Threats: Recreation (boat landing), predation (unknown) and advancing vegetational succession.

Recommendations: Maintain as part of Lloyd Point significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Continue to place signs at site to restrict boat landing. Implement predator control as needed. Manage vegetation for optimal least tern nesting. Educate the public about beach-nesting birds.

Contacts: Bill Kolodnicki, Theodore Roosevelt Sanctuary, Huntington Audubon Society, 132 Cove Rd., Oyster Bay, NY 11771, (516) 922-3200. Peter Capinolo, Queens College Center, Caumsett State Park, Huntington, NY 11743, (516) 421-3526.

Long Beach Point

SEE MAP NO. 41

LOCATION:

County, Town, Locality: Suffolk, Smithtown, Nissequogue.

Map Quad: Saint James, 400382.

Directions: Easternmost point of Long Beach in Smithtown, with Smithtown Bay (Long Island Sound) to north, Porpoise Channel, Stony Brook Harbor to south.

Owner: Village of Nissequogue.

Significant coastal habitat: Stony Brook Harbor and West Meadow.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	2	2	2	6	3
LT	-	0	-	28	50	45	82	13

Comments:

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String-fenced, posted and monitored by TNC.

Positive aspects: Owned and managed as a nature preserve by the Village of Nissequogue. ORV use restricted. Good productivity for piping plovers.

Threats: Flooding, recreation, potential development and other (suspect poor food supply).

Recommendations: Maintain as part of Stony Brook Harbor and West Meadow significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Enhance site with proper deposition of dredge spoil. Manage vegetation for optimal least tern and piping plover nesting. Restrict or mitigate development. Educate the public and area residents about beach-nesting birds.

Contacts: Clerk's Office, Village of Nissequogue, Nissequogue, New York 11780, (516) 862-7400. Long Island Chapter, The Nature Conservancy, 250 Lawrence Hill Rd., Cold Spring Harbor, New York 11724, (516) 367-3225.

Long Beach Marina Site

SEE MAP NO. 41

LOCATION:

County, Town, Village: Suffolk, Smithtown, Stony Brook Harbor.

Map Quad: Saint James, 4007382.

Directions: In the Long Beach Town Park about 1/8 of a mile west of the Bay Constable office in the yacht harbor. West of and adjacent to eastern- most "horseshoe" of boat slips. Site is located on hill east of parking lot adjacent to Stony Brook harbor.

Owner: Town of Smithtown.

Significant coastal habitat: Stony Brook Harbor and West Meadow.

SPECIES USE:

Community type: Dredge spoil deposition site.

Nest substrate: Sand/spoil.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	6	2	0	2	0	0	0
LT	-	110	85	80	30	10	0	0

Comments:

SITE MANAGEMENT:

Land use history: Dredging from the Long Beach project (S1) benefits the Long Beach Marina and Yacht Club, with 125 and 60 moorings respectively. Spoil was deposited at this site as follows:

Approximately 484,000 Cubic yards were dredged in 1958

Protection: Monitored by TNC.

Positive aspects: Owned and managed by Town of Smithtown. Accessible through harbor parking lot only by Smithtown residents.

Threats: Advancing vegetational succession and recreation.

Recommendations: Maintain as part of Stony Brook West Meadow significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern and piping plover nesting. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.

Contacts: Bob Giffen, Smithtown Town Naturalist, Box 222, Commack, New York 11725, (516) 543-7804. Russell Barnett, Smithtown Dept. of Environment and Waterways, 124 W. Main St., Smithtown, New York 11787, (516) 360-7514.

Long Beach Boat Launch Site

SEE MAP NO. 41

LOCATION:

County, Town, Locality: Suffolk, Smithtown, Stony Brook Harbor.

Map Quad: Saint James, 4007382.

Directions: In Long Beach Town Park just south of kiosk at yacht harbor entrance, opposite the entrance to beach. Site is located on peninsula extending east from parking lot into Stony Brook Harbor.

Owner: Town of Smithtown.

Significant coastal habitat: Stony Brook Harbor and West Meadow.

SPECIES USE:

Community type: Dredge spoil deposition site.

Nest substrate: Sand/spoil (LT,PP) dead herbaceous wrack (CT).

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	6	10	6	4	6	5	4
LT	-	150	105	194	180	191	26	35
CT	-	-	44	54	29	125	110	141

Comments: Common terns nested in subcolony on small island to north of peninsula.

SITE MANAGEMENT:

Land use history: Dredging from the Long zbeach Boat Basin project benefits Long Beach Marina with 170 slips. Spoil was deposited at this upland site as follows:

Approximately 44100 Cubic yards were dredged in 1953

Protection: String-fenced, posted and monitored by TNC.

Positive aspects: Owned and managed by Town of Smithtown. Accessible through harbor parking lot only by Smithtown residents.

Threats: Advancing vegetational succession and recreation.

Recommendations: Maintain as part of Stony Brook West Meadow significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern and piping plover nesting on peninsula. Restrict ORV use or limit speeds. Educate the public about beach-nesting birds.

Contacts: Bob Giffen, Smithtown Town Naturalist, Box 222, Commack, New York 11725, (516) 543-7804. Russell Barnett, Smithtown Dept. of Environment and Waterways, 124 W. Main St., Smithtown, New York 11787, (516) 360-7514.

Youngs Island

SEE MAP NO. 41

LOCATION:

County, Town, Village: Suffolk, Smithtown, Stony Brook Harbor.

Map Quad: Saint James, 4007382.

Directions: Also called Porpoise Channel Island, it is located just south of Porpoise Channel and just north of Stony Brook, in the eastern part of Stony Brook Harbor.

Owner: Town of Smithtown.

Significant coastal habitat: Stony Brook Harbor and West Meadow.

SPECIES USE:

Community type: Salt marsh island.

Nest substrate: Sand/spoil (PP, LT) and pebble (CT).

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	4	2	5	4
LT	-	30	44	57	75	125	118	126
CT	-	-	110	58	33	60	75	203

Comments: Seatuck name is "Porpoise Channel Island."

SITE MANAGEMENT:

Land use history: Dredging from the Porpoise Channel project (S4) benefits the Long Beach Marina with its 170 slips and the Stony Brook Marina with its 125 slips. Spoil was deposited for beach nourishment as follows:

An unknown amount of dredging was done in 1957

Protection: Posted and monitored by TNC. Patrolled by Smithtown Bay Constables.

Positive aspects: Owned and managed by Town of Smithtown. Relatively low recreational use due to remote location (accessed only by boat). Good productivity by piping plovers. Good predictability of nesting activity between years.

Threats: Advancing vegetational succession and predators (unknown).

Recommendations: Maintain as part of Stony Brook Harbor and West Meadow significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern and piping plover nesting. Implement predator control.

Contacts: Bob Giffen, Smithtown Town Naturalist, Box 222, Commack, NY 11725, (516) 543-7804.

Short Beach

SEE MAP NO. 42

LOCATION:

County, Town, Locality: Suffolk, Smithtown, Short Beach Town Park.
Map Quad: Saint James, 4007382.
Directions: This spoil site on the north shore is located on the Nissequogue peninsula, to the extreme northwest end, east of the Nissequogue River.
Owner: Town of Smithtown.
Significant coastal habitat: Nissequogue Inlet Beaches.

SPECIES USE:

Community type: Dredge spoil deposition site.
Nest substrate: Sand/spoil.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	30	18	4	6	6	6	1
LT	180	334	135	290	201	50	111	1
CT	-	-	204	0	0	0	0	0

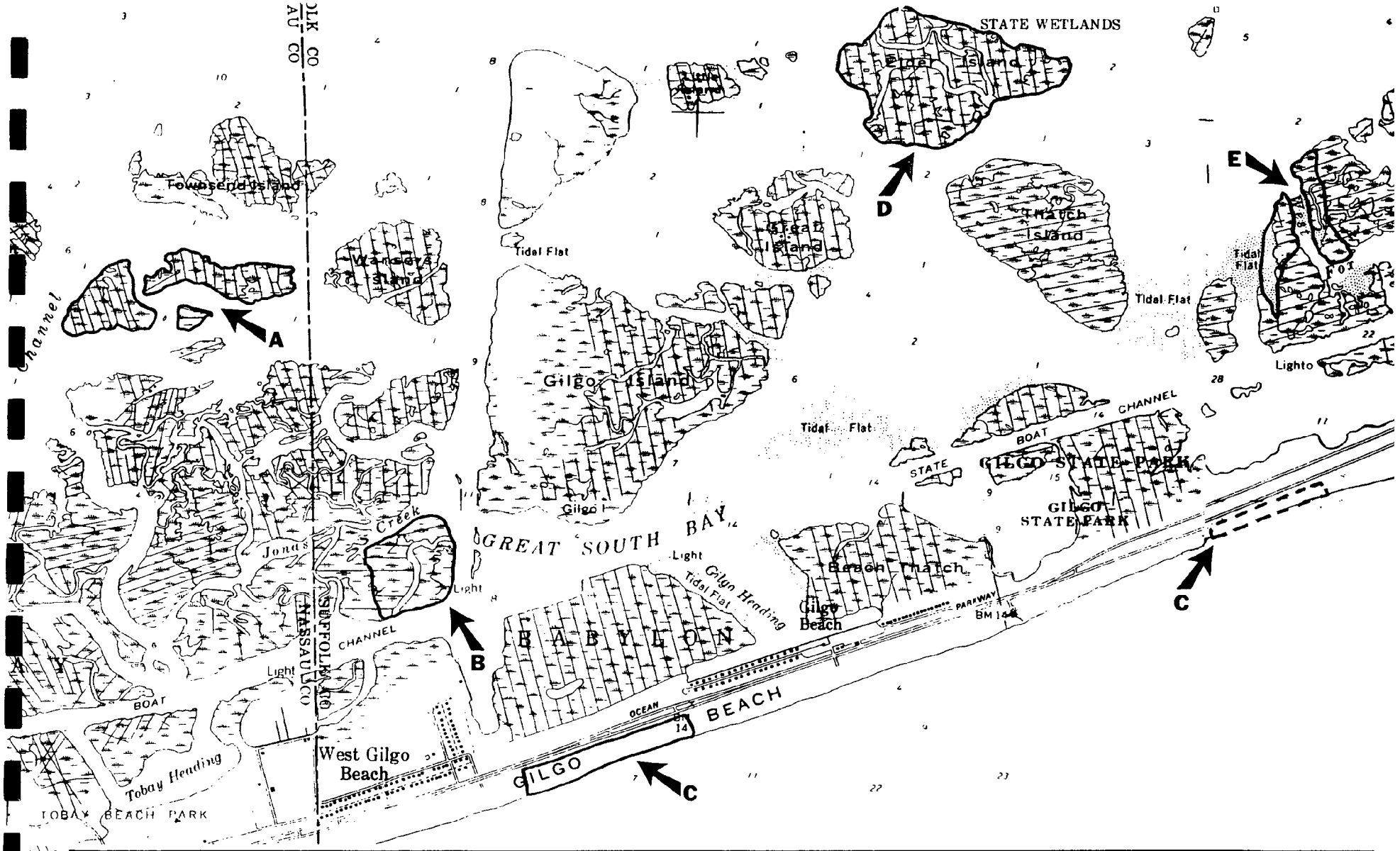
Comments: In 1988 there were at times hundreds of common terns, but they did not nest. Roseate terns were seen here in 1988, but did not nest.

SITE MANAGEMENT:

Land use history: The Nissequogue River dredging project (S3) benefits the bait and tackle station and the yacht club with its 60 moorings on the Nissequogue River. Spoil was deposited about 6 inches deep for beach nourishment as follows.

	1961	1966	1980	1987
Cubic yards	765900	140700	56000	96000

Protection: String-fenced, posted and monitored by TNC and Town of Smithtown. Volunteers coordinated by TNC and Town of Smithtown. Town of Smithtown employs a fulltime person to monitor campground just east of the site, day and night, weekends and holidays between Memorial Day and Labor Day; this person actively protects the colony.
Positive aspects: Owned and managed by Town of Smithtown. Good predictability of nesting activity between years. ORV traffic restricted. Camping facilities moved from previous location to reduce disturbance to nesting birds. Previous spoil deposition has enhanced this nesting area.
Threats: Advancing vegetational succession, recreation and pets (dogs).
Recommendations: Maintain as part of Nissequogue Inlet Beaches significant coastal habitat. Continue to monitor and protect colony as birds arrive. Manage vegetation for optimal least tern nesting. Restrict pets and educate owners and public about beach-nesting birds. Continue to enhance site with proper deposition of dredge spoil.
Contacts: Bob Giffen, Smithtown Naturalist, Box 222, Commack, NY 11725, (516) 543-7804. Amy Freiman, Town Conservation Board, 124 W. Main St., PO Box 575, Smithtown, NY, 360-7514.



MAP NO. 13 TOWN OF BABYLON

A: (See Map No. 12)

B: WEST GILGO BEACH

C: GILGO BEACH

D: ELDER ISLAND

E: WEST FOX CREEK

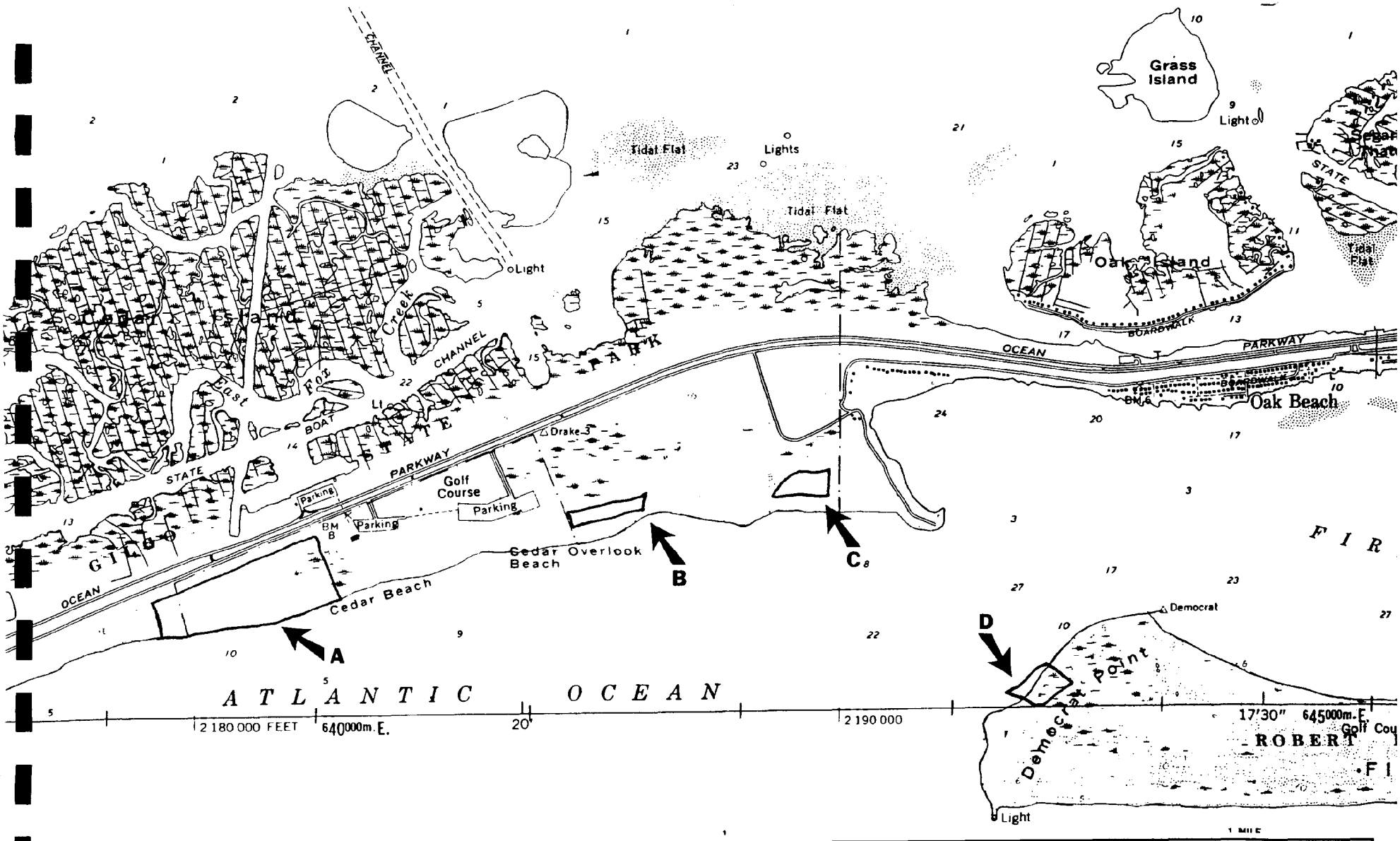
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



Map No. 14 Town of Babylon

A: CEDAR BEACH BABYLON

B: OVERLOOK BEACH

C: OAK BEACH SORE THUMB

D: DEMOCRAT POINT

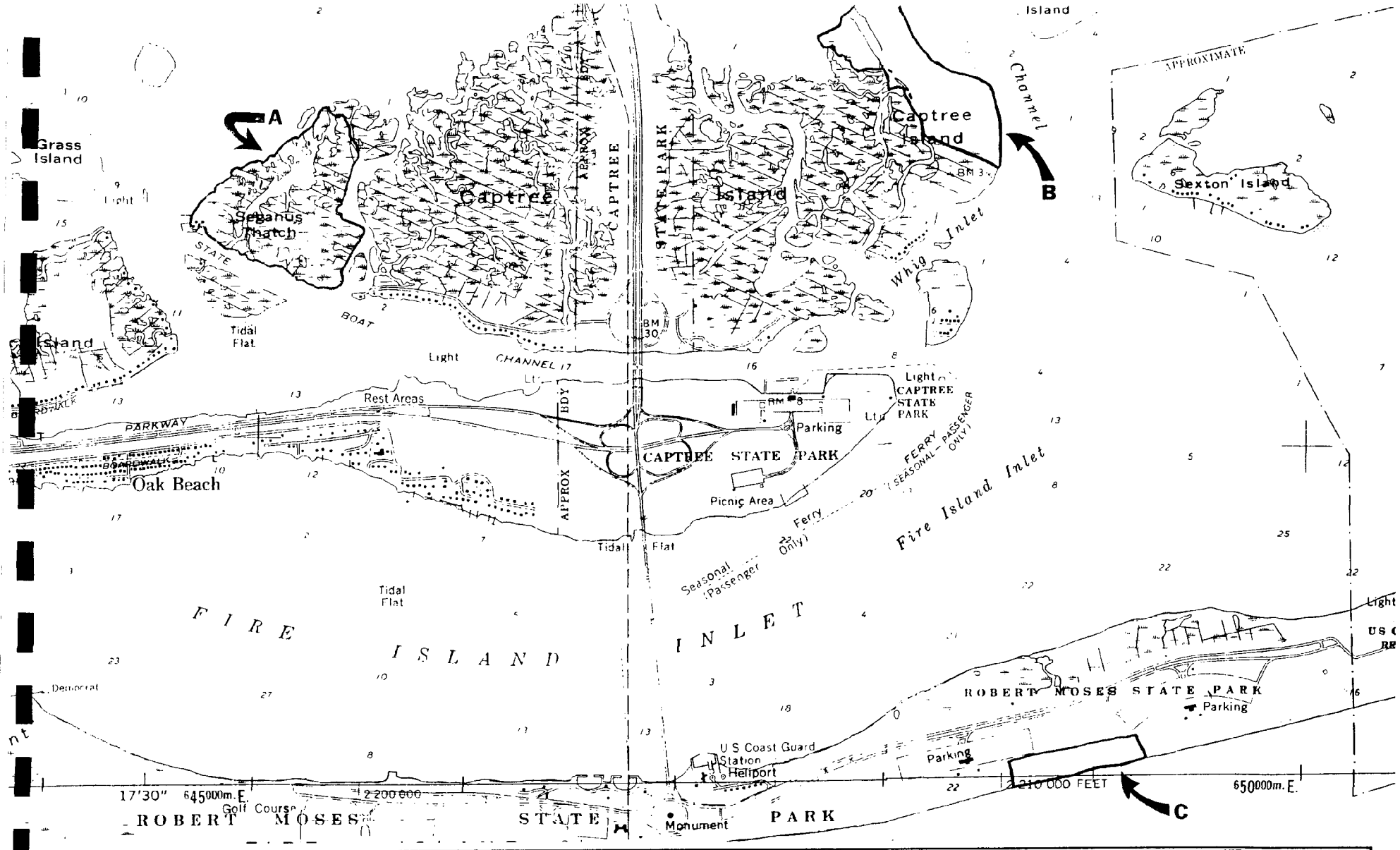
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



Map No. 15 Town of Babylon

A: SEGANUS THATCH

B: (See Map No. 16)

C: (See Map No. 16)

N

7000 FEET

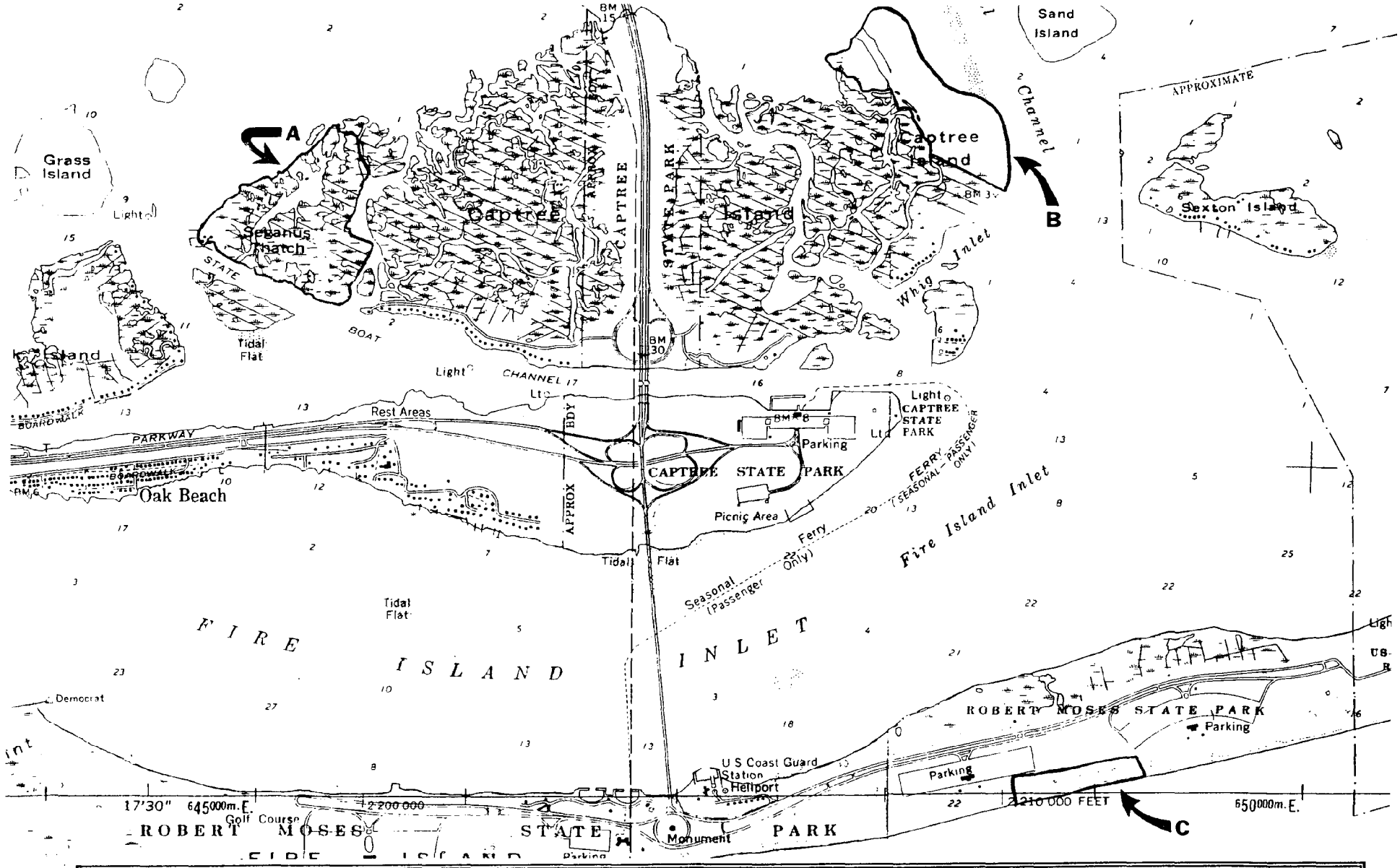
OMETER

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

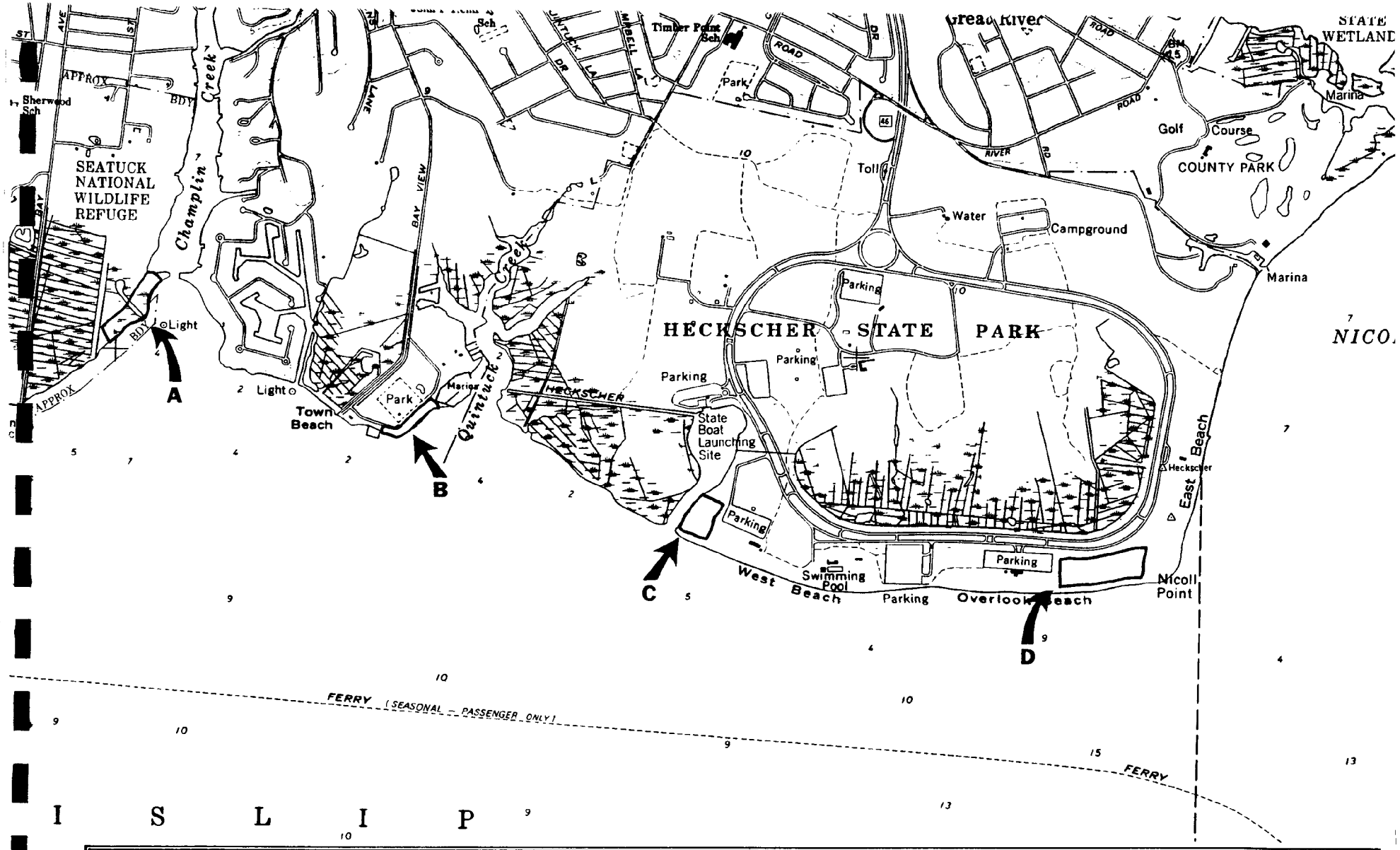


Map No. 16 Town of Islip

A: (See Map No. 15) B: CAPTREE ISLAND C: ROBERT MOSES FIELD 5

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Map No. 17 Town of Islip

A: SEATUCK NATIONAL WILDLIFE REFUGE

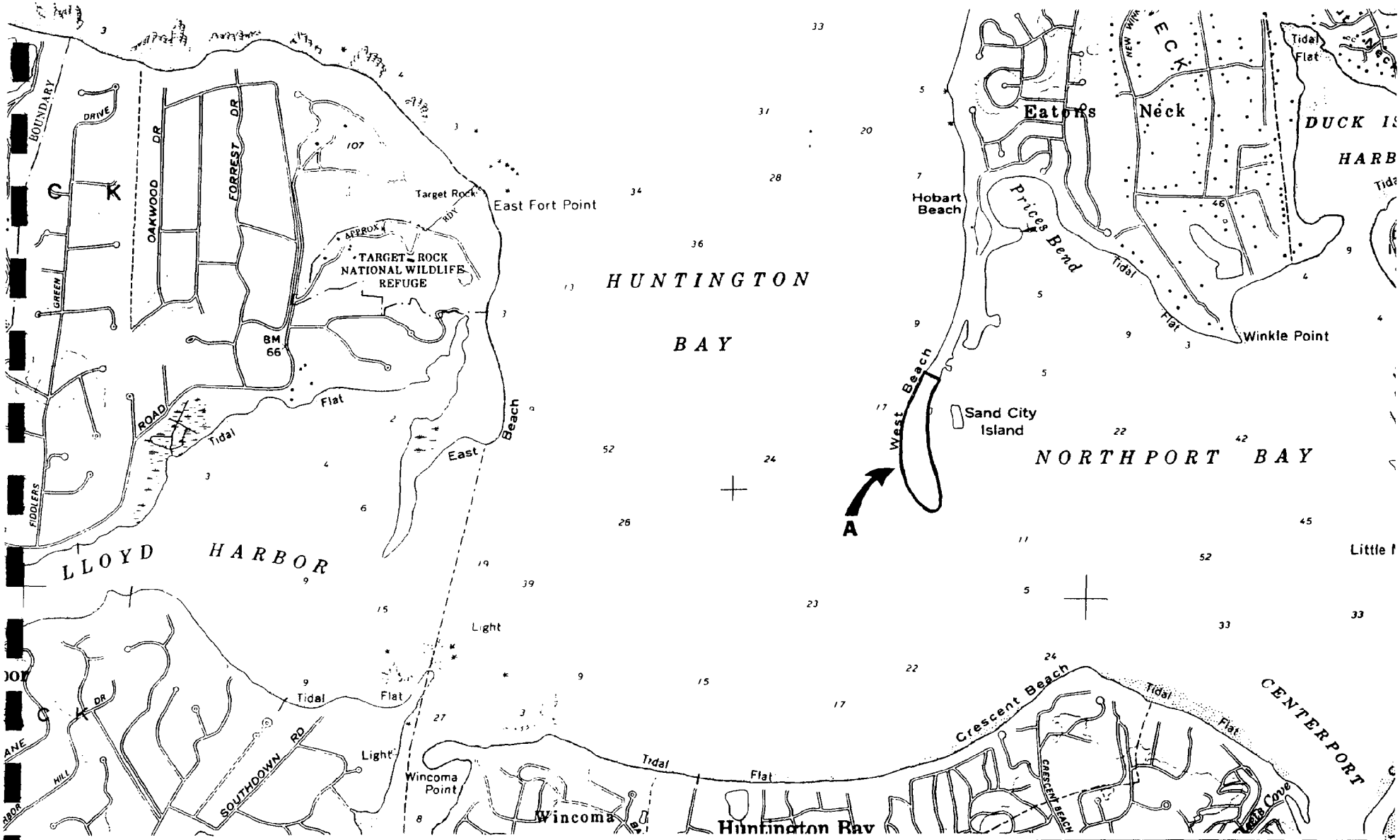
B: EAST ISLIP MARINA

C: HECKSCHER STATE PARK FIELD 6

D: HECKSCHER STATE PARK FIELD 8

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

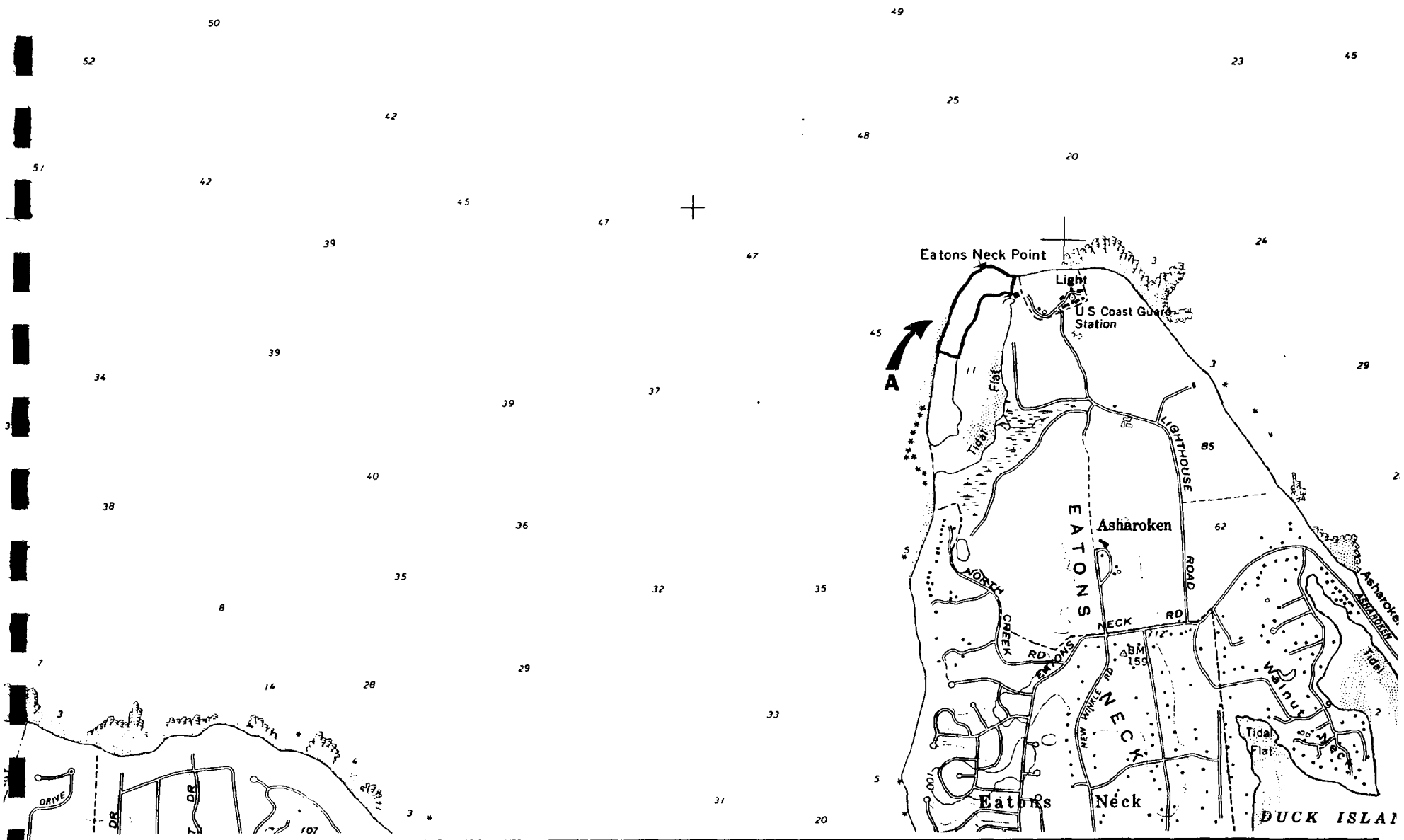


Map No. 38 Town of Huntington

A: SAND CITY

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

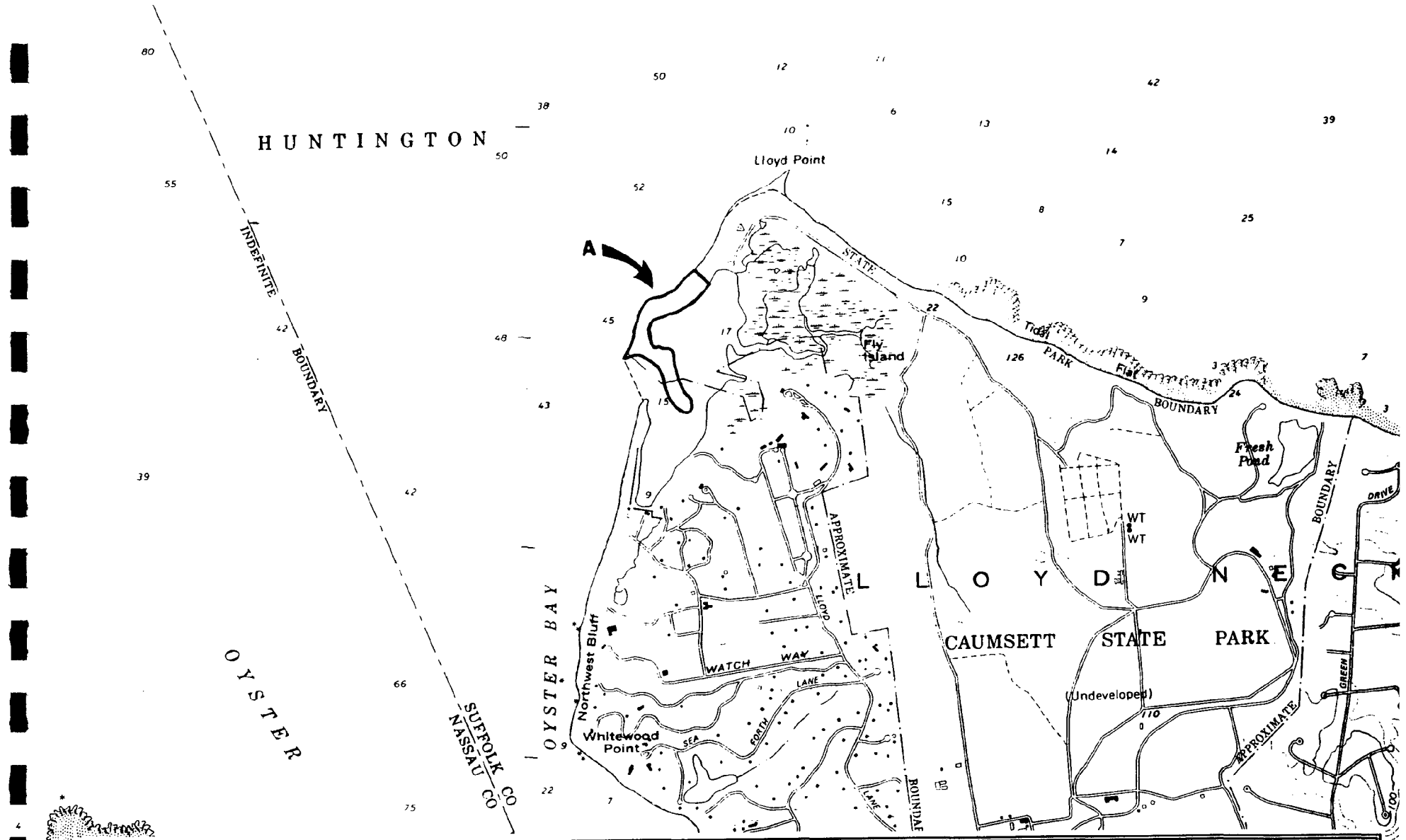


MAP NO. 39 TOWN OF HUNTINGTON

A: EATONS NECK POINT

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



MAP NO. 40 TOWN OF HUNTINGTON

A: CAUMSETT STATE PARK

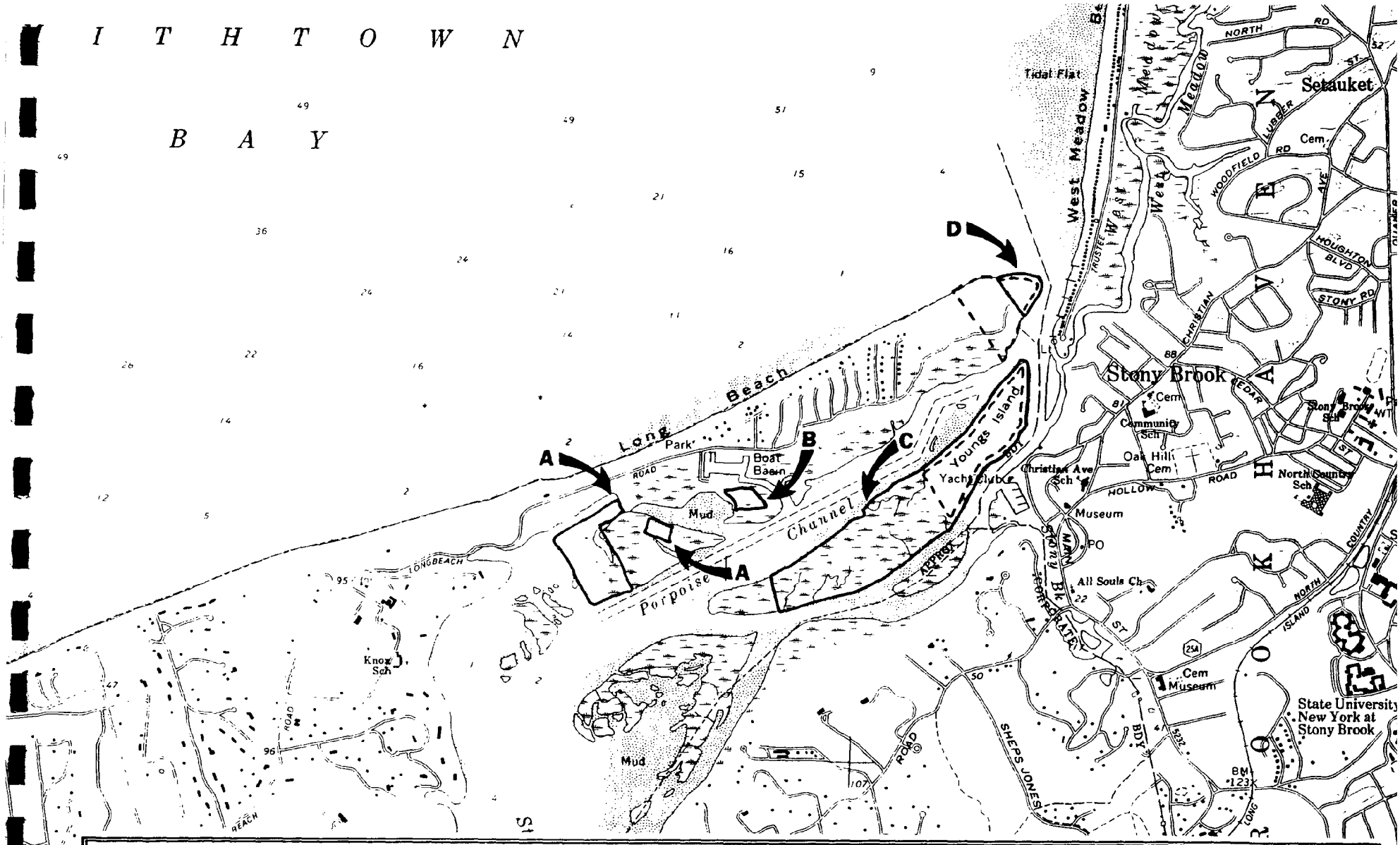
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



MAP NO. 41 TOWN OF SMITHTOWN

A: LONG BEACH BOAT LAUNCH

B: LONG BEACH MARINA

C: YOUNGS ISLAND

D: LONG BEACH POINT

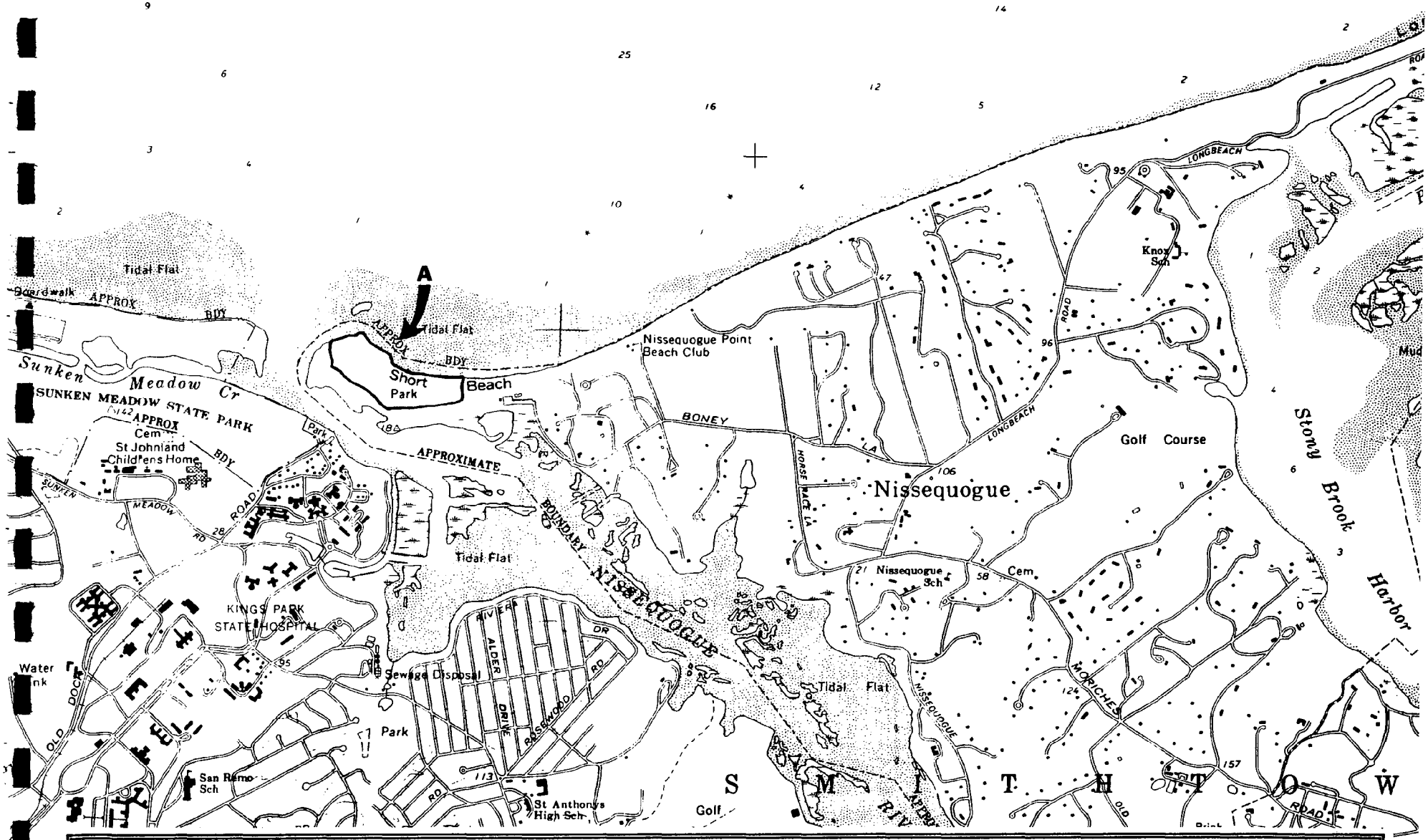
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

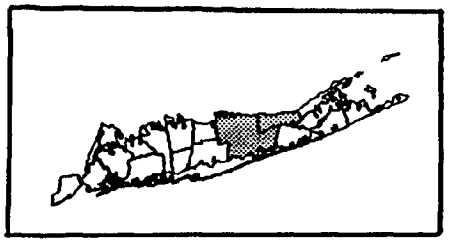


MAP NO. 42 TOWN OF SMITHTOWN

A: SHORT BEACH

N

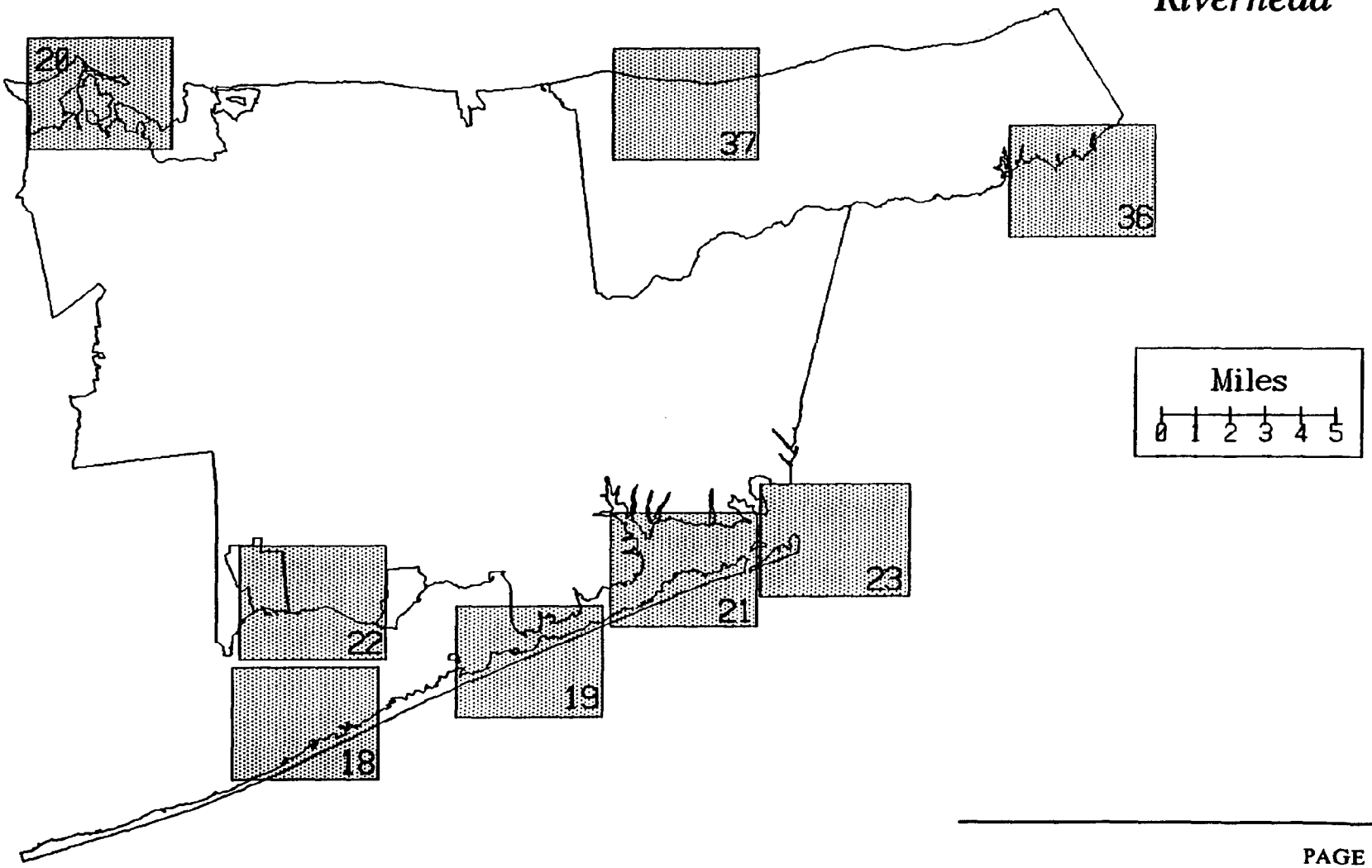
New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Municipalities

Brookhaven

Riverhead



BROOKHAVEN

Map No. 18
Watch Hill Fire Island *111*
Long Cove Fire Island *112*

Map No. 19
Smith Point Shirley *113*

Map No. 20
Flax Pond *114*
Mount Misery Point *115*
Old Field Beach Point *116*

Map No. 21
West Inlet Island *117*
Carters Island *118*
New Made Island *119*
Smith Point County Park *120*

Map No. 22
Roe Avenue Patchogue *121*

Map No. 23
Cupsogue Beach County Park *122*
East Inlet Island *123*

RIVERHEAD

Map No. 36
Jamesport Town Beach East *124*

Map No. 37
Edwards Avenue Baiting Hollow *125*

Watch Hill Fire Island

SEE MAP NO. 18

LOCATION:

County, Town, Locality: Suffolk, Brookhaven, Fire Island.
Map Quad: Howells Point, 4007268.
Directions: At Watch Hill Harbor on Fire Island, on west side of harbor mouth on Great South Bay (accessed via ferry from town of Patchogue).
Owner: US National Park Service (Fire Island National Seashore).
Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Dredge spoil deposition site, island.
Nest substrate: Sand/spoil.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	56	0	18	120	125	363	303	72
PP	-	0	0	0	0	2	2	2
CT	-	-	0	0	0	2	6	1

Comments:

SITE MANAGEMENT:

Land use history: Past spoil deposition site.
Protection: Snow-fenced, posted and monitored by NPS.
Positive aspects: Owned and managed by NPS. Relatively low recreational use due to remote location (accessible only by private boat or ferry).
Threats: Advancing vegetational succession and recreation (boat landing).
Recommendations: Designate as significant coastal habitat area. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern and piping plover nesting. Educate the public about beach-nesting birds.
Contacts: Dave Griese, Fire Island National Seashore, 120 Laurel St., Patchogue, NY 11772, (516) 597-6455.
Paul Czachor, Fire Island National Seashore, 120 Laurel St., Patchogue, NY 11772, (516) 597-6455.

Long Cove Fire Island

SEE MAP NO. 18

LOCATION:
County, Town, Locality: Suffolk, Brookhaven, Fire Island.
Map Quad: Howells Point, 4007268.
Directions: On south shore of Fire Island, adjacent to Atlantic Ocean, about 3/4 of a mile east of Watch Hill's main bathing beach.
Owner: U.S. National Park Service (Fire Island National Seashore).
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	2	7	5
LT	0	0	0	0	40	55	82	85

Comments:

SITE MANAGEMENT:
Land use history: No known dredging.
Protection: String- and snow-fenced, posted and monitored by NPS. Patrolled by NPS rangers.
Positive aspects: Owned and managed by NPS. Good productivity of least terns and piping plovers. Relatively low recreational use due to remote location. ORV use light, restricted to official vehicles. ORV users educated about beach-nesting birds.
Threats: Flooding, ORV traffic and recreation.
Recommendations: Designate as significant coastal habitat area. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Educate the public and ORV users about beach nesting birds.
Contacts: Dave Griese, Fire Island National Seashore, 120 Laurel St., Patchogue, NY 11772, (516) 597-6455.
Carol McNulty, Fire Island National Seashore, 120 Laurel St., Patchogue, NY 11772, (516) 597-6455.

Smith Point Shirley

SEE MAP NO. 19

LOCATION:

County, Town, Locality: Suffolk, Brookhaven, Shirley.

Map Quad: Pattersquash Island, 4007267.

Directions: Site is between the Shirley Basin of undeveloped Smith Point County Marina North and William Floyd Parkway, just before crossing the Suffolk Blvd. Smith Point Bridge. It is the easternmost land mass on north shore of Great South Bay.

Owner: Suffolk County (Smith Point County Marina North).

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Dredge spoil deposition site.

Nest substrate: Sand/spoil.

History: The following numbers of adult least terns were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	7	6	17	63	123	281	368

Comments: Least terns nested only on sand covered portions of dredge spoil in 1988. Dredge spoil deposited improperly in 1988, with silt on top, which reduced the available nesting area.

SITE MANAGEMENT:

Land use history: The site has been used by the Smith Point dredging project (BR34) for disposal of spoil. In 1957, 809,100 cubic yards were deposited; in 1961, 365,000 cubic yards were deposited. Dredging benefits general navigation.

Protection: String- and snow-fenced, posted and monitored by TNC. Patrolled by Suffolk County Parks. Volunteers coordinated by TNC.

Positive aspects: Owned and managed by Suffolk County Parks. Good productivity of least terns. Elevated berm discouraged ORV traffic. Cooperation from Suffolk County Parks.

Threats: Vandalism (berm attracts neighborhood children), pets (dogs), advancing vegetational succession and development (proposed marina).

Recommendations: Designate as significant coastal habitat. Restrict pets and educate owners about nesting birds. Restrict or mitigate development. Enhance site with proper deposition of dredge spoil. Manage vegetation for optimal least tern nesting. Educate the public and area residents about beach-nesting birds.

Contacts: John Turner, Suffolk Co. Dept. of Parks, Recreation, and Conservation, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767. Bill Welsh, same address as above, (516) 281-4277.

Flax Pond

SEE MAP NO. 20

LOCATION:

County, Town, Locality: Suffolk, Brookhaven, Old Field.
Map Quad: Saint James, 4007382.
Directions: On north central shore of Old Field Peninsula, east of Crane Neck Point, and west of Old Field Point.
Owner: NYS Department of Environmental Conservation.
Significant coastal habitat: Flax Pond.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand and pebble.
History: The following numbers of adult birds were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	1	0	0	0	0	0
LT	-	300	100	15	0	0	2	0

Comments:

SITE MANAGEMENT:

Land use history: No known dredging.
Protection: Monitored by Town of Brookhaven, Department of Environmental Protection.
Positive aspects: Owned and managed by New York State as a wetlands preserve.
Threats: Advancing vegetational succesession and recreation.
Recommendations: Maintain as Flax Pond significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern nesting. Educate the public and area residents about beach-nesting birds.
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11794, (516) 751-7900. Murray Wade, Town of Brookhaven, Department of Environment, 3233 Route 112, Medford, NY 11763, (516) 451-6455.

Mount Misery Point

SEE MAP NO. 20

LOCATION:

County, Town, Locality: Suffolk, Brookhaven, Port Jefferson.

Map Quad: Port Jefferson, 4007381.

Directions: Also referred to as McAllister County Park, the northernmost land mass bordering Port Jefferson Harbor on east side of harbor mouth, just north of the Village of Belle Terre. Least terns nest primarily on the north side of peninsula, on beach bordering Long Island Sound.

Owner: Suffolk County (McAllister County Park).

Significant coastal habitat: Port Jefferson Beaches.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	3	8	6	5	6	8
LT	-	0	226	182	302	110	43	192
CT	-	-	0	0	0	2	8	166

Comments:

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String-fenced, posted and monitored by TNC. Volunteers coordinated by TNC.

Positive aspects: Owned and managed by Suffolk County Parks. Relatively low recreational use due to remote location.

Threats: Predation (fox), pets (dogs), flooding, recreation, ORVs and other (suspect poor food supply).

Recommendations: Maintain as part of Port Jefferson Beaches significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Implement predator control. Restrict pets and educate owners about beach-nesting birds. Restrict ORV use or limit speeds. Educate the public, area residents and ORV users about beach-nesting birds.

Contacts: John Turner, Suffolk Co. Dept. of Parks, Recreation and Conservation, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767. Dr. Sheldon Katz, Attorney at Law, 18 Cliffside Dr., Belle Terre, NY 11777, (516) 369-1100.

Old Field Beach Point

SEE MAP NO. 20

LOCATION:

County, Town, Locality: Suffolk, Brookhaven, Old Field.

Map Quad: Port Jefferson, 4007381.

Directions: The land mass on the west side of the mouth of the Port Jefferson Harbor. Birds nest on the southeastern tip of this peninsula, adjacent to Port Jefferson Harbor, rather than along Long Island Sound.

Owner: Suffolk County.

Significant coastal habitat: Port Jefferson Beaches.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand and pebble.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	10	8	6	6	3	1
LT	-	0	315	93	57	30	11	7
CT	-	-	55	34	51	48	14	0

Comments: Least tern nests failed due to flooding in 1988. Common tern nests failed, probably due to predation.

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String-fenced, posted and monitored by TNC. Volunteers coordinated by TNC.

Positive aspects: Designated as a bird sanctuary by Suffolk County. Relatively low recreational use due to remote location. Accessible primarily by boat.

Threats: Flooding and recreation (boaters, camping).

Recommendations: Maintain as part of Port Jefferson Beaches significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict camping. Educate the public about beach-nesting birds.

Contacts: John Turner, Suffolk Co. Dept. of Parks, Recreation and Conservation, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767.

West Inlet Island

SEE MAP NO. 21

LOCATION:
County, Town, Locality: Suffolk, Brookhaven.
Map Quad: Moriches, 4007277.
Directions: Cupsogue Beach County Park, near S. Brookhaven/Southampton town line.
Owner: Town of Brookhaven.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-shrub.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	1050	1110	1050	1200	55	6
RT	-	-	8	0	10	23	0	0
BS	-	-	36	46	38	60	0	3

Comments: Two subcolonies exist: the main subcolony and the heronry subcolony. This was a new site for egrets.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding, recreation, and predation are potential threats.
Recommendations:
Contacts: Mike Scheibel, NY Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Carters Island

SEE MAP NO. 21

LOCATION:
County, Town, Locality: Suffolk, Brookhaven.
Map Quad: Moriches, 4007277.
Directions: North of Smith Point County Park, directly south of Floyd Point, Mastic.
Owner: Town of Brookhaven.
Significant coastal habitat: Moriches Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	158	2000	1800	2200	1200	1675
BS	-	-	0	0	0	6	0	0

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding and predation are potential threats.
Recommendations:
Contacts: Mike Scheibel, NY Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

New Made Island

SEE MAP NO. 21

LOCATION:
County, Town, Locality: Suffolk, Brookhaven.
Map Quad: Moriches, 4007277.
Directions: North of Smith Point County Park, south of Floyd Point, Mastic.
Owner: Town of Brookhaven.
Significant coastal habitat: Moriches Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	1050	178	363	975	1150	0

Comments: Two subcolonies: marsh subcolony, located on barrier beach salt marsh, and subcolony 1.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding and predation are current threats; recreation is a potential threat.
Recommendations:
Contacts: Mike Scheibel, NY Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Smith Point County Park Site

SEE MAP NO. 21

LOCATION:

County, Town, Locality: Suffolk, Brookhaven, Shirley.

Map Quad: Moriches, 4007277.

Directions: Located on Fire Island in Smith Point County Park, approximately 1 mile west of Moriches Inlet, includes most of Great Gun Beach. On south shore of barrier island, bordering Atlantic Ocean.

Owners: Suffolk County (Smith Point County Park) and Town of Brookhaven.

Significant coastal habitat: Smith Point County Park.

SPECIES USE:

Community type: Marine sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	4	4	6	6
LT	0	0	0	0	642	329	135	26

Comments: ORVs and construction vehicles for Moriches Inlet jetty work were diverted around site in 1988 by Suffolk County Parks.

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String- and snow-fenced, posted and monitored by TNC and Suffolk County Parks. Patrolled by Suffolk County Parks. Volunteers coordinated by TNC.

Positive aspects: Owned and managed in part by Suffolk County Parks. Good productivity for least terns and piping plovers. Beach closed to ORVs through nesting season by Suffolk County Parks.

Threats: ORV traffic, flooding, recreation, vandalism, and pets (dogs).

Recommendations: Maintain as part of significant coastal habitat. Restrict ORV use. Continue to monitor and protect the colony as birds arrive. Restrict pets and educate owners about beach-nesting birds. Educate the public and ORV users about beach-nesting birds.

Contacts: John Turner, Suffolk Co. Dept. of Parks, Recreation and Conservation, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767. Bill Welsh, same address, (516) 281-4277.

Roe Avenue Patchogue

SEE MAP NO. 22

LOCATION:

County, Town, Locality: Suffolk, Brookhaven, Patchogue.

Map Quad: Howells Point, 4007268.

Directions: Located at the end of Roe Avenue in East Patchogue, across the street from the Domino Yacht Club, just west of Mud Creek, and just north of Great South Bay.

Owners: Private

Significant coastal habitat: Roe Avenue Spoil Area.

SPECIES USE:

Community type: Dredge spoil deposition site.

Nest substrate: Sandy spoil.

History: The following numbers of adult birds were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	9	20	0	0	0	14	22

Comments: Least terns were present at the site all years but were never successful at breeding due to heavy ORV disturbance. Seven breeding pairs in 1988 were joined by about 40 adults when ORV traffic was eliminated.

SITE MANAGEMENT:

Land use history: Dredging from the Mud Creek project (BR22) benefits the marina on Mud Creek with its 400 slips. Contractors are currently under a ten-year dredging restriction. Spoil was deposited on this upland site as follows:

	1982	1983	1984	1985	1986
Cubic Yards	4800	3500	1300	6000	1800

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers coordinated by TNC. Patrolled by Suffolk County Police.

Positive aspects: In 1988 least terns nested successfully when ORV traffic was eliminated. Private landowner permits fencing of site.

Threats: ORV traffic, pets (dogs) and development.

Recommendations: Maintain as Roe Avenue Dredge Spoil Area significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use. Restrict development. Monitor dredging activity to insure regulations are followed, especially the correct timing of spoil placement. Educate the public, area residents and ORV users about beach- nesting birds. Restrict pets, educate owners about beach-nesting birds.

Contacts: Peter Capinola, Caumsett State Park, Lloyd Harbor, NY 11743, (516) 421-3526.

Cupsogue Beach County Park Site

SEE MAP NO. 23

LOCATION:

County, Town, Village: Suffolk, Brookhaven, East Moriches.
Map Quads: Eastport, 4007276.
Directions: The colony is located about 150 meters east of Moriches Inlet in the Cupsogue Beach County Park
Owner: Suffolk County (Cupsogue Beach County Park).
Significant coastal habitat: Cupsogue County Park.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand and sand/spoil.
History: *The following numbers of adult birds for each species were estimated in the years indicated.*

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	5	6	8	4	10	8	13
LT	300	856	35	71	0	?	49	222

Comments: Much of the beach was washed away by hurricane Gloria in 1985.

SITE MANAGEMENT:

Land use history: The Moriches Inlet dredging project (BR29) deposited spoil for beach nourishment at two spots including Moriches Inlet (and Cupsogue) and Northwest Cut (an island). Dredging benefits general navigation. Not all of the following spoil was deposited at the tern site, but it does represent potential nesting substrate for future colonies and would require appropriate management.

	1953	1958	1966	1969	1973	1978	1987
Cubic Yards	747300	365700	677900	151000	135000	218500	20000

Protection: String-fenced, posted and monitored by TNC in 1987.
Positive aspects: Relatively low recreation due to remote location. Owned and managed by Suffolk County Parks. Good predictability of nesting activity between years. Good productivity by piping plovers.
Threats: Recreation (boat landing) and potential predation (gulls). ORVs are a potential threat if Dune Road is opened up.
Recommendations: Maintain as Cupsogue County Park significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Implement predator control (exclosures). Educate the public about beach-nesting birds.
Contacts: John Turner, Suffolk County Parks Commission, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767.

East Inlet Island

SEE MAP NO. 23

LOCATION:
County, Town, Locality: Suffolk, Brookhaven.
Map Quad: Eastport, 4007276.
Directions: Moriches inlet just north of Cupsogue Beach County Park.
Owner: Town of Brookhaven.
Significant coastal habitat: Moriches Bay.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	-	-	-	-	?	3350
RT	-	-	-	-	-	-	?	70
BS	-	-	-	-	-	-	?	212

Comments:

SITE MANAGEMENT:
Land use history: This is a dredge spoil deposition site.
Protection: None.
Positive aspects:
Threats: Recreation is a potential threat.
Recommendations:
Contacts: Michael Scheibel, NYS Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Jamesport Town Beach East

SEE MAP NO. 36

LOCATION:

County, Town, Village: Suffolk, Riverhead, Jamesport.
Map Quad: Mattituck, 4007285.
Directions: Located in South Jamesport Town Beach just northeast of Miamogue Point with Flanders bay to the immediate south.
Owner: Town of Riverhead.
Significant coastal habitat: Jamesport Town Beach.

SPECIES USE:

Community type: Dredge spoil deposition site.
Nest substrate: Sand/spoil.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	4	4	4	0	2	2	1
LT	4	10	80	224	6	0	58	120

Comments:

SITE MANAGEMENT:

Land use history: The East Creek dredging project (R2) benefits the town marina with 77 slips and a New York State boat ramp. Dredge spoil was deposited at this site for beach nourishment, and formerly on an upland site.

	1960	1983	1984	1985	1986	1987	1988	1989
Cubic yards	305900	108700	35600	38800	4300	4300	5000	10000

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.
Positive aspects: *Owned and operated by Town of Riverhead.*
Threats: Recreation, advancing vegetational succession, pets and clam beds (stored within the colony's boundary). Local "party" spot with ORV use. Dredging across inlet disturbs birds.
Recommendations: Maintain as Jamesport Town Beach significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern nesting. Conduct dredging across inlet during non-nesting season, and use spoil deposition to enhance nesting habitat. Restrict pets, educate owners about beach-nesting birds. See that clam beds are not stored where least terns may nest (see Steve Sanford of DEC). Educate the public about beach-nesting birds.
Contacts: Town of Riverhead, Riverhead Parks Department, Riverhead, NY 11901.
Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

Edwards Avenue Baiting Hollow

SEE MAP NO. 37

LOCATION:

County, Town, Locality: Suffolk, Riverhead, Wading River.

Map Quad: Wading River, 40007287.

Directions: Located on north side of Riverhead, between Baiting Hollow Scout Camp and Camp Grant. Adjacent to New York State Conservation Area. Located 1/2 of a mile west of parking area at end of Edwards Ave., on beach.

Owner: NYS Department of Environmental Conservation.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	0	0	0	0	0	0	0	1
LT	0	0	0	33	0	0	0	2

Comments: Thirteen least terns were observed loafing at site in 1988, no nesting.

SITE MANAGEMENT:

Land use history: No known dredging.

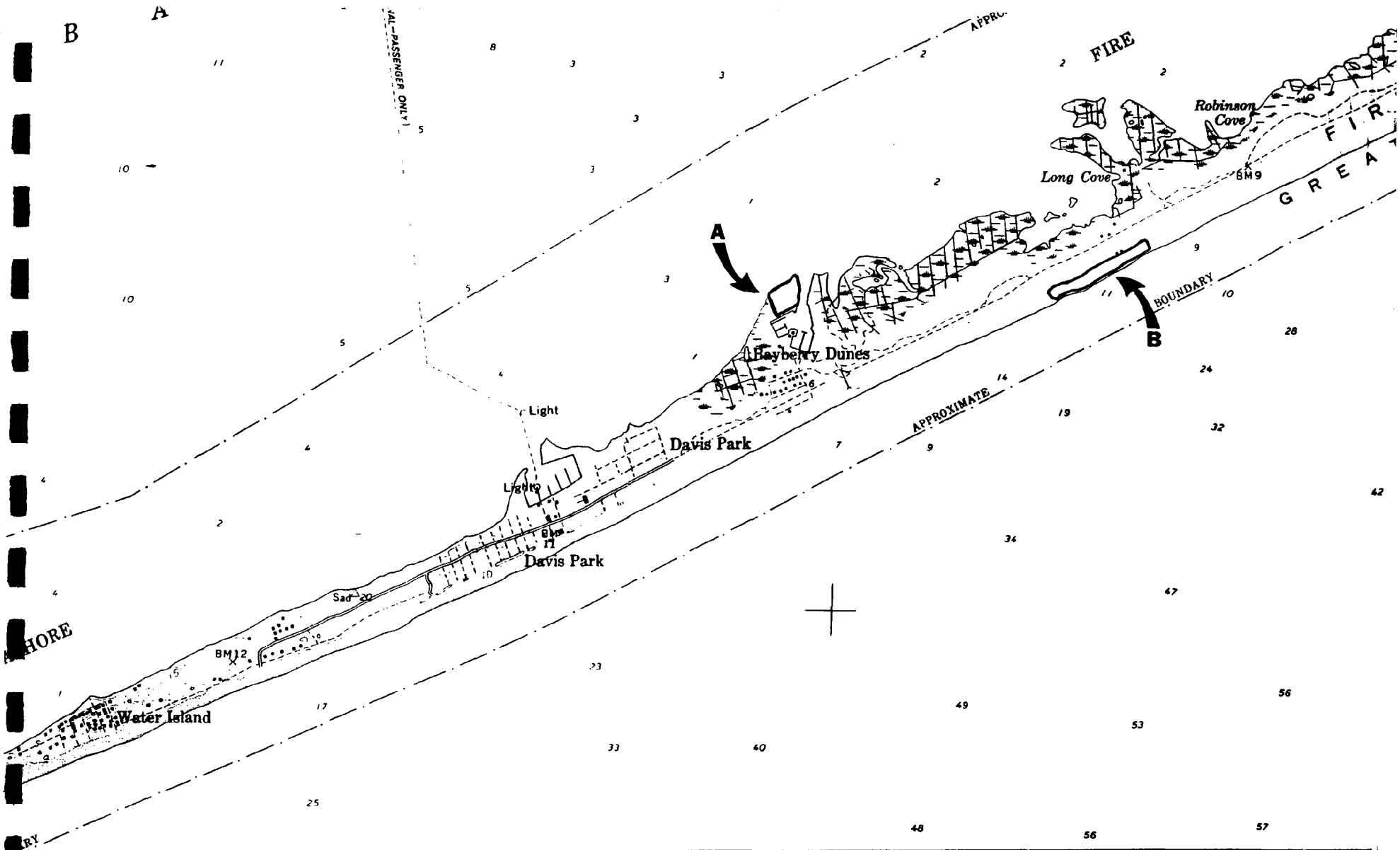
Protection: Monitored by TNC.

Positive aspects: Owned and managed by New York State. Relatively low recreational use due to remote location.

Threats: ORV traffic, pets (dogs) and other (not known why least terns stopped nesting here).

Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Restrict pets and educate owners about beach-nesting birds. Educate the public, area residents and ORV users about beach-nesting birds.

Contacts: Mike Scheibel, NYS Department of Environmental Conservation, SUNY Stony Brook, Bldg.#40, SUNY, Stony Brook, New York 11790, (516) 751-7900.

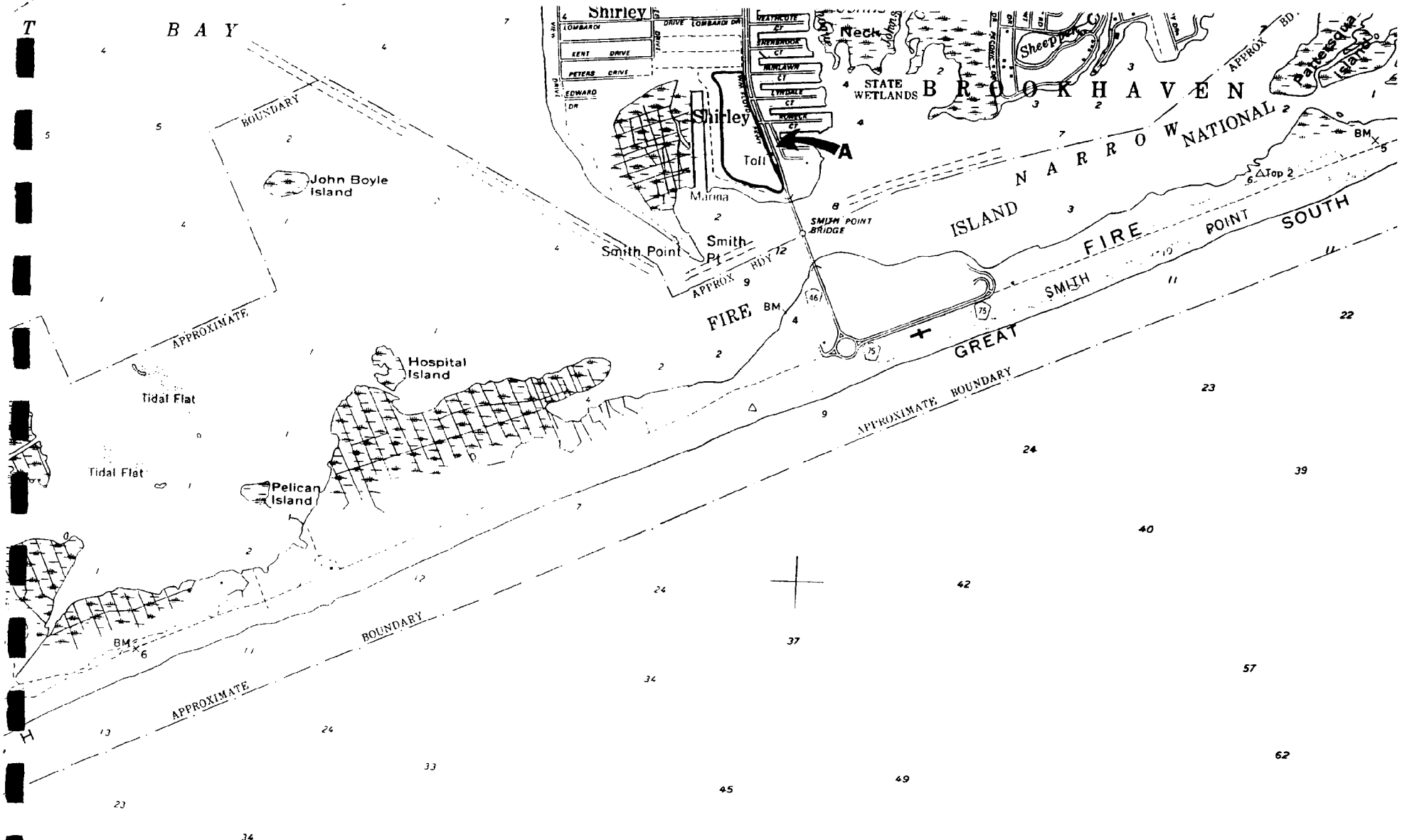


MAP NO. 18 TOWN OF BROOKHAVEN

A: WATCH HILL **B: LONG COVE FIRE ISLAND**

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

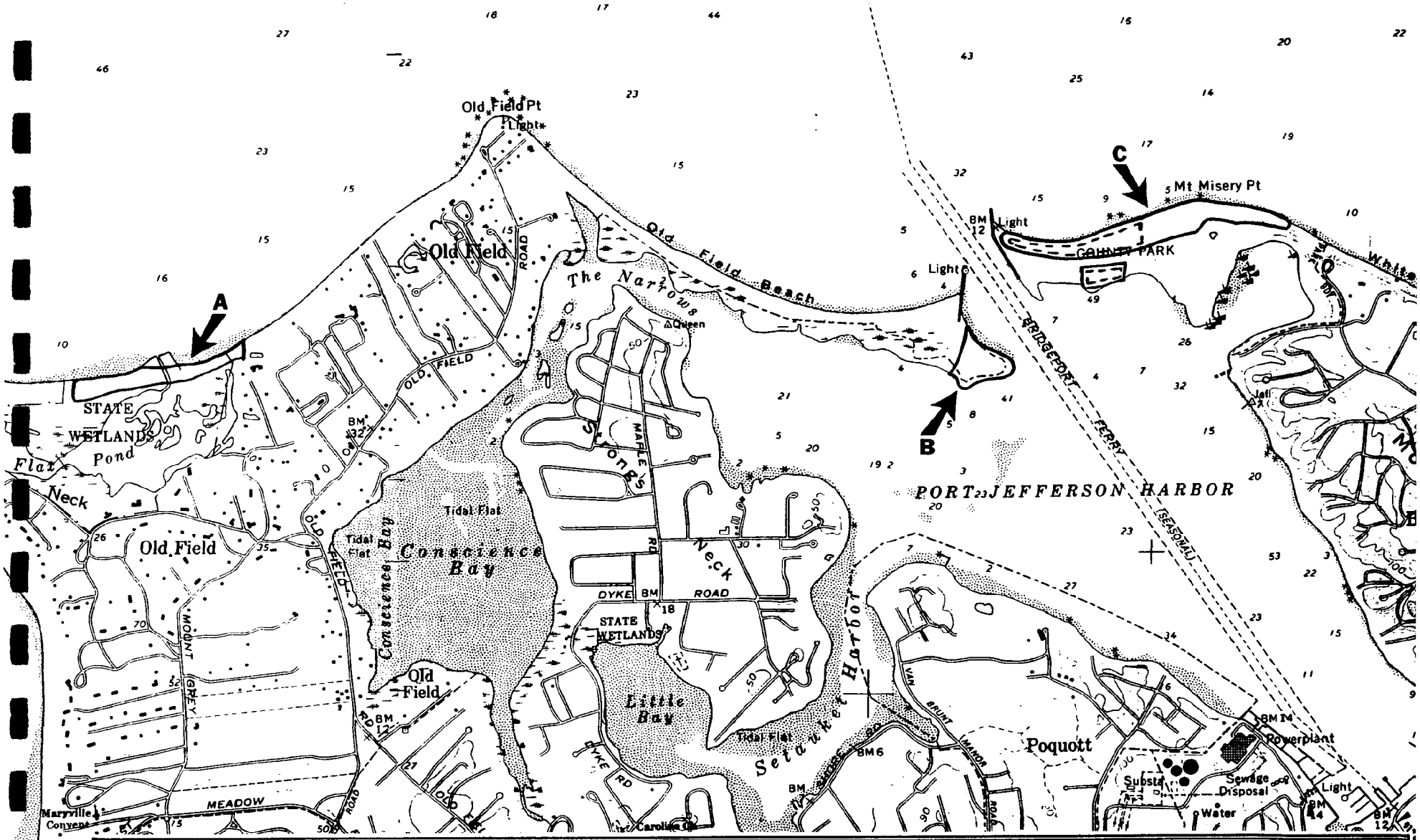


MAP NO. 19 TOWN OF BROOKHAVEN

A: SMITH POINT SHIRLEY

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization | Prepared by T. Hart and G. Capobianco | March 1991 | **Scale:** 1" = 2000'

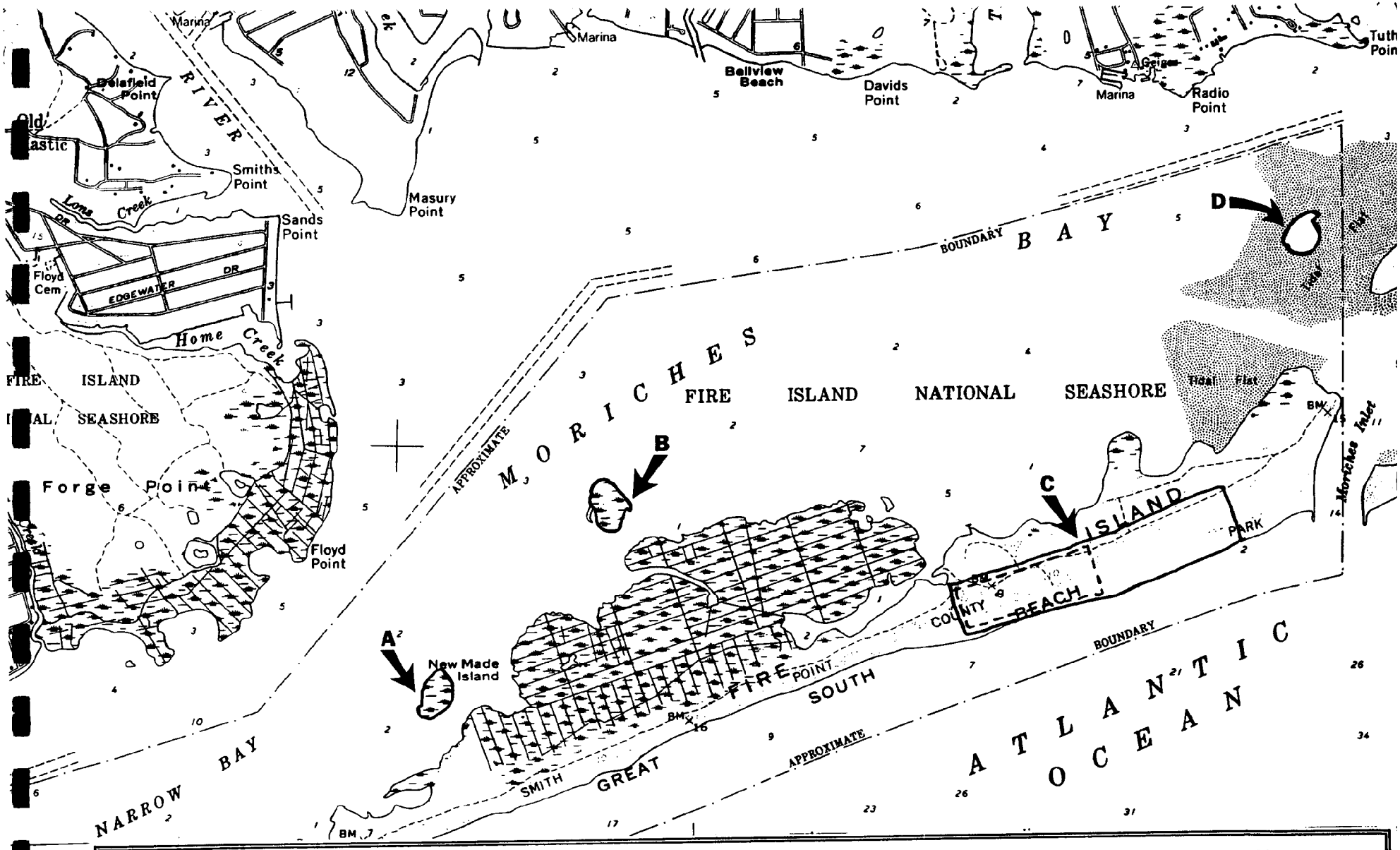


Map No. 20 Town of Brookhaven

A: FLAX POND **B: OLD FIELD BEACH** **C: MOUNT MISERY POINT**

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Map No. 21 Town of Brookhaven

A: NEW MADE ISLAND

B: CARTERS ISLAND

C: SMITH POINT COUNTY PARK

D: WEST INLET ISLAND

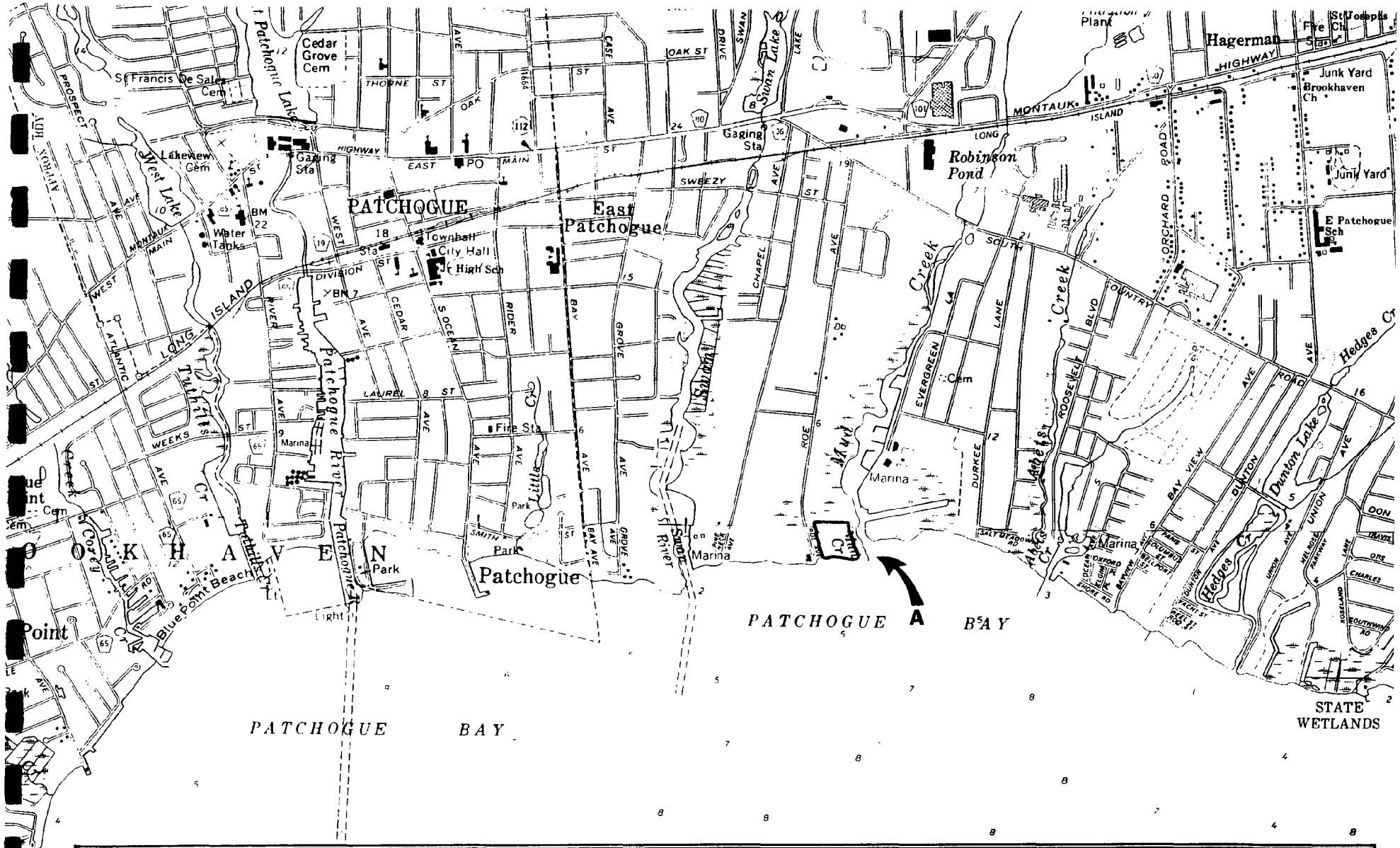
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

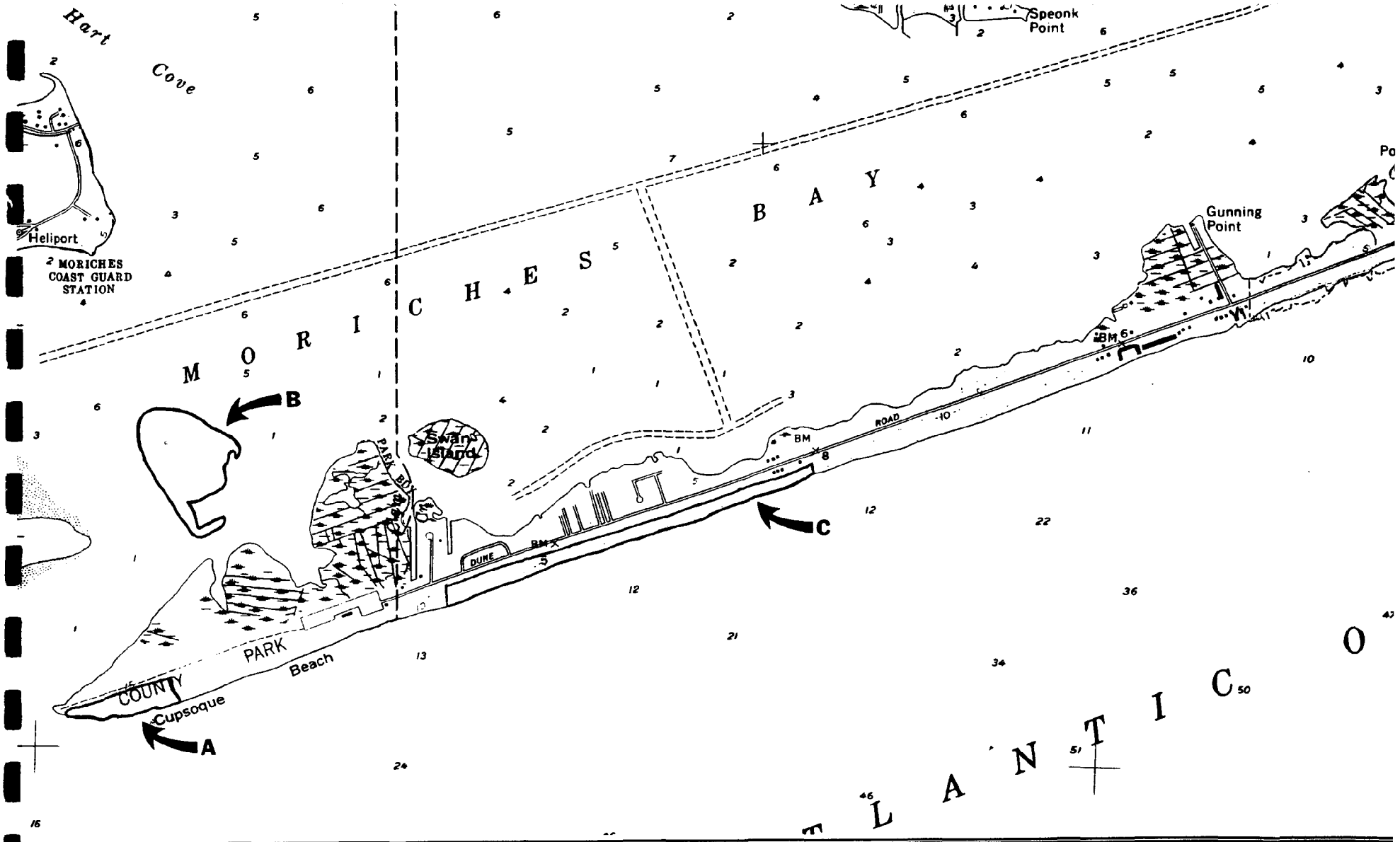


MAP NO. 22 TOWN OF BROOKHAVEN

A: ROE AVENUE PATCHOGUE

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

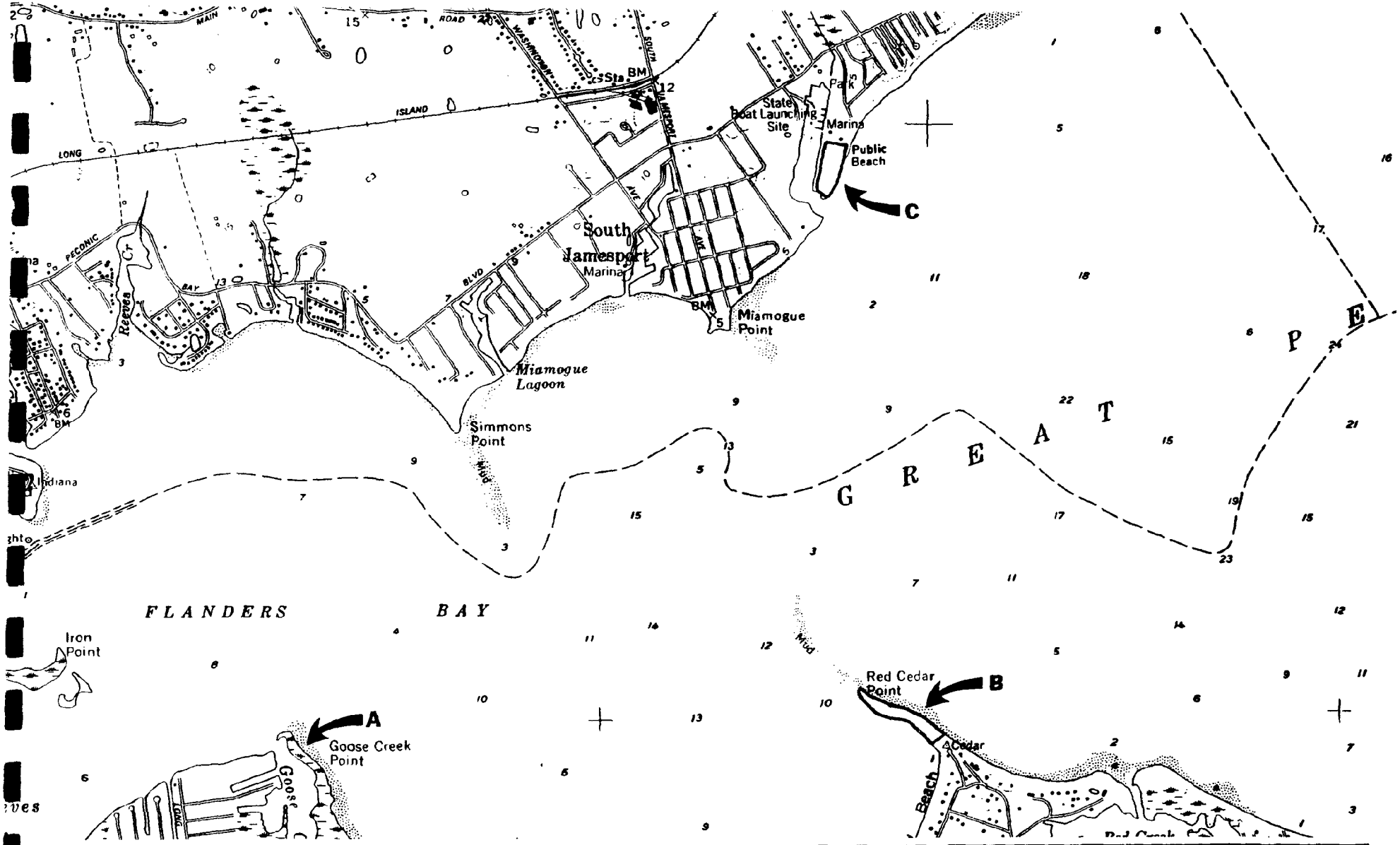


Map No. 23 Town of Brookhaven

A: CUPSOGUE BEACH COUNTY PARK B: EAST INLET ISLAND C: (See Map No. 24)

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



MAP NO. 36 TOWN OF RIVERHEAD

A: (See Map No. 35)

B: (See Map No. 35)

C: JAMESPORT TOWN BEACH EAST

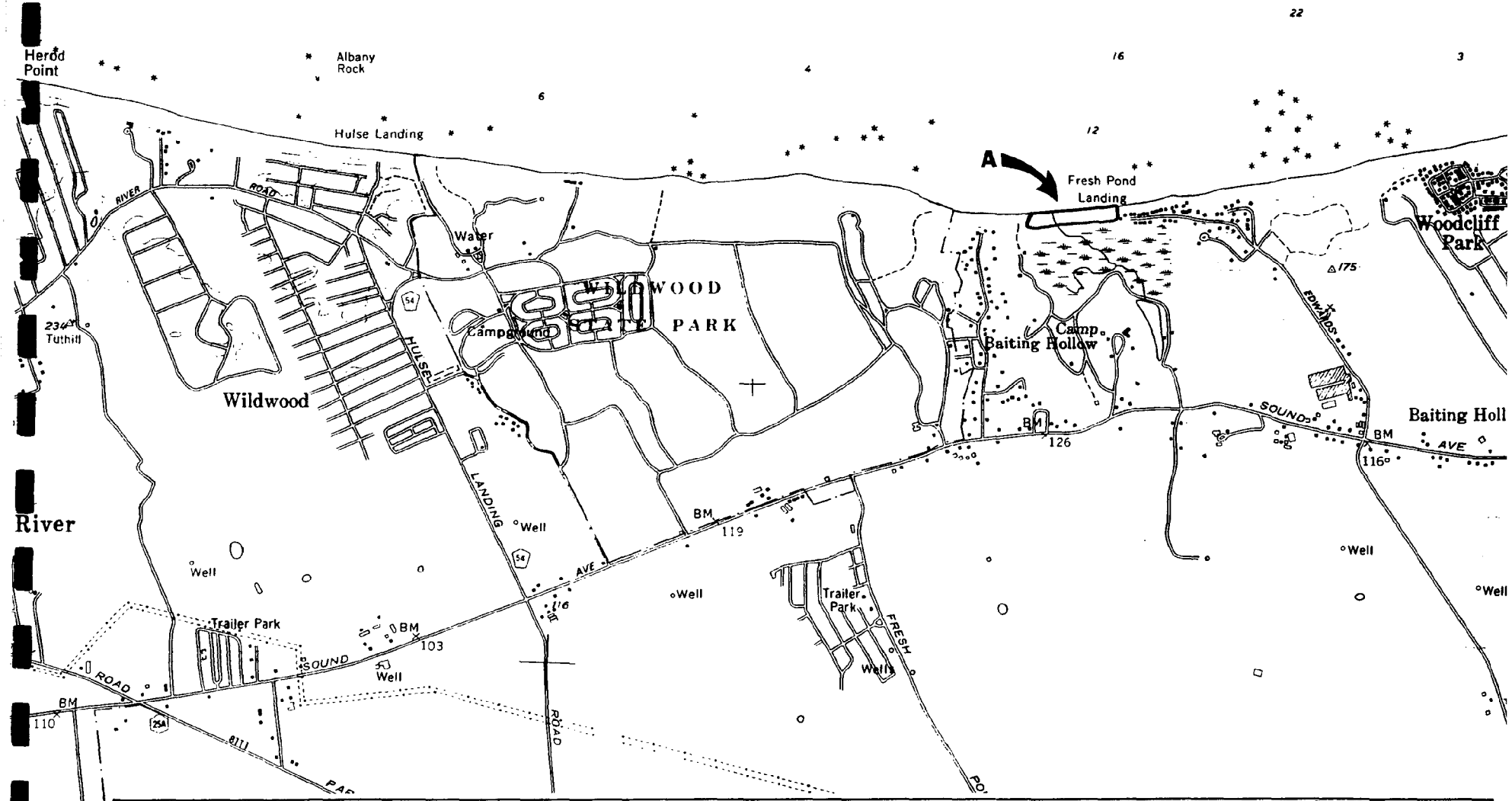
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

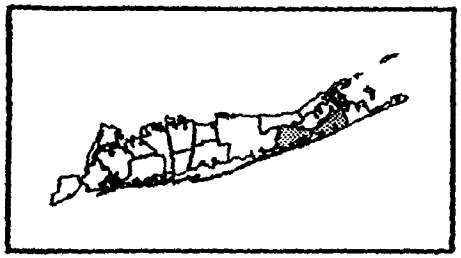


MAP NO. 37 TOWN OF RIVERHEAD

A: EDWARDS AVENUE BAITING HOLLOW

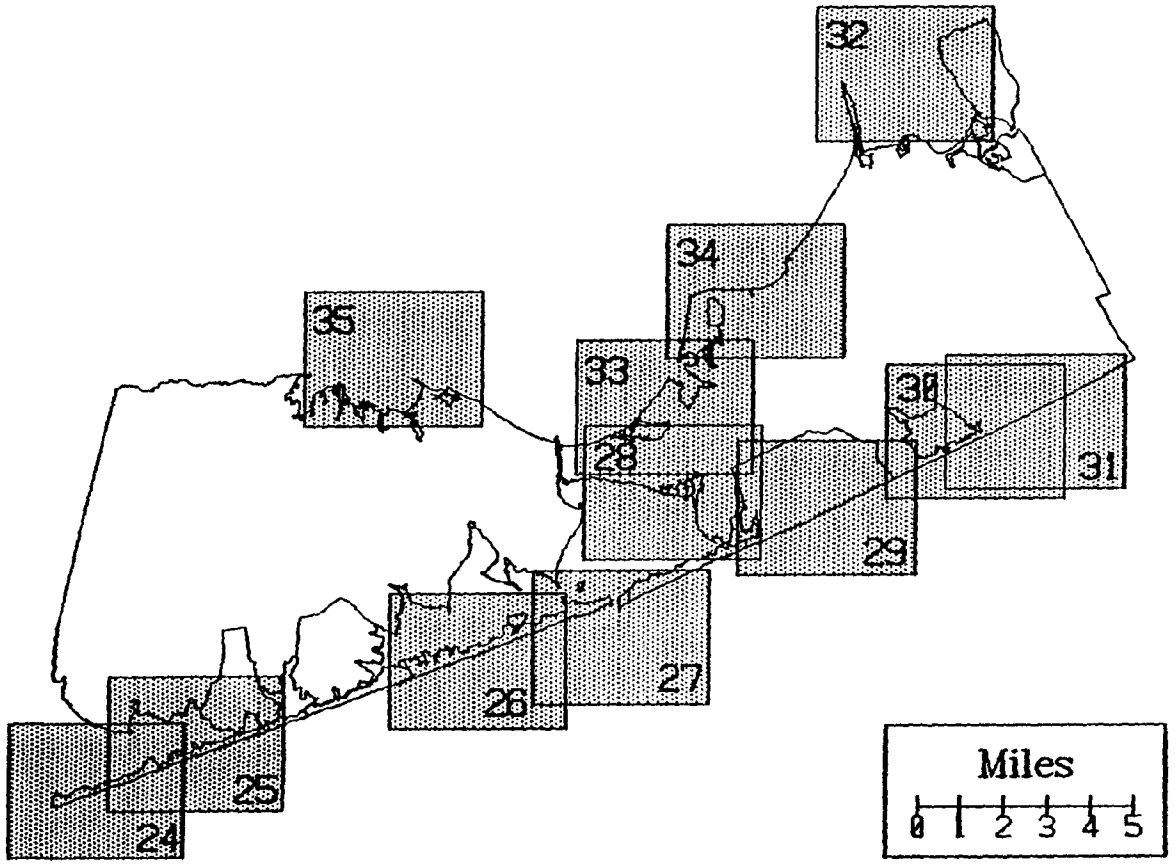
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Municipality

Southampton



SOUTHAMPTON

Map No. 24
Pikes Beach 129

Map No. 25
Westhampton Beach 130

Map No. 26
Dune Road Quogue 131
Hot Dog Beach 132
Tiana Beach 133
Ponquogue Beach West 134
Sedge Island 135
Greater Greenbacks Island 136
Lesser Greenbacks Island 137
Lanes Island 138

Map No. 27
Ponquogue Beach East 139
Shinnecock Inlet 140
Southampton Beach 141
Warner Islands 142

Map No. 28
Middle Pond Inlet 143

Map No. 29
Phillips Pond 144
Old Town Road Site 145
Coopers Neck Pond 146

Map No. 30
Mecox Beach 147
Sams Creek 148

Map No. 31
Sagaponack Pond 149
Peters Lane 150

Map No. 32
Pine Neck 151
Morton National Wildlife Refuge 152

Map No. 33
Cow Neck 153
Sebonac Neck 154

Map No. 34
Wooley Pond 155
Fish Cove 156
Towd Neck 157
Fresh Pond Whalebone 158

Map No. 35
Red Cedar Point 159
Goose Creek 160

Pikes Beach

SEE MAP NO. 24

LOCATION:

County, Town, Locality: Suffolk, Southampton, Tiana.
Map Quad: Eastport, 4007276.
Directions: Located on Westhampton Beach barrier island, on southeast (ocean) shore, opposite Swan Island in Moriches Bay.
Owner: Many private owners.
Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune, dredge spoil deposition site.
Nest substrate:
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	2	0	0	0	-
LT	0	?	?	15	0	0	0	-

Comments: Piping plovers seen in 1984, but none nested.

SITE MANAGEMENT:

Land use history: The Pikes Beach Channel dredging project (SH24) was carried out for beach nourishment. Dredge spoil was deposited in the following quantities, probably in vicinity of nesting areas or on bay side of island.

	1968	1973	1978
Cubic yards	120800	63700	200000

Protection: Monitored by TNC.
Positive aspects: Beach closed to vehicles and pedestrians due to severe erosion.
Threats: Beach erosion and flooding.
Recommendations: Designate as significant coastal habitat. Continue to monitor and protect nesting areas as birds arrive. Enhance site with proper deposition of dredge spoil (if possible).
Contacts: Seatuck Research Program, P.O. Box 31, Islip, NY 11751, (516) 581-6908.

Westhampton Beach

SEE MAP NO. 25

LOCATION:

County, Town, Village: Suffolk, Southampton, Westhampton Beach.

Map Quad: Eastport, 4007276.

Directions: The colony is a long one extending east and west from the Sword Fish Club at the southern terminus of Jessup Lane. The colony east of Sword Fish is called Lashley Pavilion and the colony west of the club is called Rogers Pavilion.

Owner: Many private owners.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	-	9	40	36	32
LT	0	0	0	0	275	704	370	349

Comments:

SITE MANAGEMENT:

Land use history: No known dredging. Groin field constructed in 1960's. NYS ownership fixed at mean high tide level for 1964 and 1967.

Protection: String-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.

Positive aspects: Good productivity and numbers of both least terns and piping plovers on this stretch of beach. Some compliance by beach residents to post and string colony, although area is not completely protected. West of each groin sand is building up and provides good nesting habitat.

Threats: Recreation and residential use of beach.

Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colonies as birds arrive. Educate public and area residents about beach-nesting birds. String colonies with corridors through colonies to allow beach access to residents. Restrict pets and educate owners about beach-nesting birds. Inform fireworks coordinators about beach nesting-birds and ask that these activities be directed away from colony. Include current management at following inns and clubs: Sandpiper Inn, LaRonde Beach Club, Swordfish Club, LaCoquille Beach Club, Ocean Dunes West, and others where birds may try to nest. Also distribute educational information to beachfront residents on a yearly basis.

Contacts: Arma E. Andon, Mayor, Village of Westhampton Beach, P.O. Box 991, Westhampton Beach, NY 11978-0991.

Dune Road Quogue

SEE MAP NO. 26

LOCATION:
County, Town, Locality: Suffolk, Southampton, Quogue.
Map Quad: Quogue, 4007275.
Directions: Located north of Dune Rd., on the north side of Westhampton Beach barrier island, 1.8 miles northeast of the junction of Dune Rd. and Post Lane, approx. 1/4 mile southwest of Sedge Island in Shinnecock Inlet. (Just southwest of Tequila Flats Restaurant.)
Owner: Private.
Significant coastal habitat: Dune Road Marsh.

SPECIES USE:
Community type: Dredge spoil deposition site.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	5	3	0	2	2
LT	80	0	3	41	10	13	20	24

Comments:

SITE MANAGEMENT:
Land use history: No known dredging. Exclusively recreational beach.
Protection: Posted and monitored by TNC.
Positive aspects: Little human disturbance.
Threats: Advancing vegetational succession and recreation (fishing).
Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern nesting. Enhance site with proper deposition of dredge spoil. Educate the public and area residents about beach-nesting birds.
Contacts: Seatuck Research Program, P.O. Box 31, Islip, NY 11751, (516) 581-6908.

Hot Dog Beach

SEE MAP NO. 26

LOCATION:
County, Town, Locality: Suffolk, Southampton, East Quogue.
Map Quad: Quogue, 4007275.
Directions: From the junction of Dune Rd. and Post Lane, on Westhampton Beach barrier island, proceed northeast on Dune Rd. approx. 2 1/2 miles to Triton Lane, turn right (southeast), and park near beach. Site is located on beach, approx. 300 meters northeast.
Owner: *Many private owners.*
Significant coastal habitat: Tiana Beach.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	5	8	8	14	14
LT	0	0	40	88	575	65	140	86

Comments:

SITE MANAGEMENT:
Land use history: No known dredging. Exclusively recreational beach. Private landowners believe private property extends to water's edge.
Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers coordinated by TNC.
Positive aspects: Excellent habitat for least terns.
Threats: Recreation, development, ORV traffic, flooding, predation (fox) and pets.
Recommendations: Educate the public, area residents and ORV users about nesting birds. Restrict development. Restrict ORV use or limit speeds. Implement predator control (exclosures). Restrict pets and educate owners about beach-nesting birds.
Contacts: Seatuck Research Program, P.O. Box 31, Islip, NY 11751, (516) 581-6908.

Tiana Beach

SEE MAP NO. 26

LOCATION:

County, Town, Locality: Suffolk, Southampton, Tiana.
Map Quad: Quogue, 4007275.
Directions: Located on Southampton Beach barrier island, approximately 1/2 mile southwest of the southern tip of Lanes Island. From Tiana Beach Town Park, walk 400 meters east along beach from parking lot.
Owner: Town of Southampton and Suffolk County.
Significant coastal habitat: Tiana Beach.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	3	6	10	3	11	6	6
LT	100	17	162	47	0	0	29	15

Comments: Seatuck lists this site as a subcolony of "Lanes-Tiana East." Piping plovers and least terns have used areas between Hot Dog Beach and Tiana Beach in past years; Seatuck calls this area "west of Tiana Beach."

SITE MANAGEMENT:

Land use history: No known dredging.
Protection: String-fenced, posted and monitored by TNC.
Positive aspects: Less heavily used for recreation than beaches east and west of nesting area.
Threats: Recreation, ORV traffic, pets and development.
Recommendations: Maintain as part of Tiana Beach significant coastal habitat. Continue to monitor and protect the colony site as birds arrive. Educate the public, area residents and ORV users about beach-nesting birds. Restrict ORVs or limit speeds. Restrict or mitigate development. Restrict pets and educate owners about beach-nesting birds.
Contacts: Seatuck Research Program, P.O. Box 31, Islip, NY 11751, (516)581-6908.

Ponquogue Beach West

SEE MAP NO. 26

LOCATION:
County, Town, Locality: Suffolk, Southampton, Ponquogue.
Map Quad: Quogue, 4007275.
Directions: Located on barrier beach, approx. 1 1/2 miles southwest of Shinnecock Inlet lookout tower. From Ponquogue Town Park (junction of Dune and Lighthouse Rds.), site is located approx. 1/3 of a mile west along beach.
Owner: Suffolk County.
Significant coastal habitat: Tiana Beach.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	-	4	2	2	0	0	0
LT	70	-	50	67	0	0	0	0

Comments:

SITE MANAGEMENT:
Land use history: No known dredging.
Protection: Monitored by TNC.
Positive aspects:
Threats: Recreation, ORV traffic and predation.
Recommendations: Maintain as part of Tiana Beach significant coastal habitat. Continue to monitor and protect nesting areas as birds arrive. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.
Contacts: Seatuck Research Program, P.O. Box 31, Islip, NY 11751, (516) 581-6908.

Sedge Island

SEE MAP NO. 26

LOCATION:
County, Town, Locality: Suffolk, Southampton.
Map Quad: Quogue, 4007275.
Directions: North of Dune Road and Dolphin Lane intersection.
Owner: Southampton Trustees.
Significant coastal habitat: Dune Road Marsh.

SPECIES USE:
Community type: Saltwater, non-barrier island with barrier island subcolony.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	0	288	0	76	41	70	40
BS	-	-	50	0	0	2	0	0

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding and predation are potential threats.
Recommendations:
Contacts: Mike Scheibel, NY Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Greater Greenbacks Island

SEE MAP NO. 26

LOCATION:
County, Town, Locality: Suffolk, Southampton.
Map Quad: Quogue, 4007275.
Directions: North of Beach Road, west of Ponquogue Bridge.
Owner: Southampton Trustees.
Significant coastal habitat: Dune Road Marsh.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	98	73	175	130	120	140
BS	-	-	2	0	0	2	?	0

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding is a current threat; predation is a potential threat.
Recommendations:
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Lesser Greenbacks Island

SEE MAP NO. 26

LOCATION:
County, Town, Locality: Suffolk, Southampton.
Map Quad: Quogue, 4007275.
Directions: North of Beach Road, west of Ponquogue Bridge, west of Greater Greenbacks Island.
Owner: Southampton Trustees.
Significant coastal habitat: Dune Road Marsh.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	70	138	11	0	?	18

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Flooding and recreation are potential threats.
Recommendations:
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Lanes Island

SEE MAP NO. 26

LOCATION:
County, [illegible]ty: Suffolk, Southampton.
Map Quad: Quogue, 40[illegible]5.
Directions: North of Tiana Beach in Shinnecock Bay.
Owner: Southampton Trustees.
Significant coastal habitat: Dune Road Marsh.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	2000	4000	1780	3315	3270	437
RT	-	-	76	125	10	2	0	0
BS	-	-	4	4	72	49	36	26

Comments: Seatuck lists this site with Tiana Beach as "Lanes-Tiana East."

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects:
Threats: Predation is a current threat.
Recommendations:
Contacts: Michael Scheibel, NYS Dept. of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Ponquogue Beach East

SEE MAP NO. 27

LOCATION:

County, Town, Locality: Suffolk, Southampton, Ponquogue.

Map Quad: Shinnecock Inlet, 4007274.

Directions: Located on barrier island, approximately 3/4 of a mile southwest of Shinnecok Inlet lookout tower. From junction of Dune and Lighthouse Roads, proceed approx. 1/2 mile northeast of Dune Rd. to Road I. Turn right (southeast) onto Road I and park at road end. Site is located southwest from road end approx. 1/8 mile.

Owner: Town of Southampton.

Significant coastal habitat: Tiana Beach.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	2	1	2	4	4	2
LT	70	34	50	51	120	25	3	3

Comments:

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String- and snow-fenced, posted and monitored by TNC.

Positive aspects:

Threats: Recreation, ORV traffic, advancing vegetational succession, vandalism and beach erosion.

Recommendations: Maintain as part of Tiana Beach significant coastal habitat. Continue to monitor and protect the colony as needed. Educate the public and ORV users about beach-nesting birds. Restrict ORV use or limit speeds.

Contacts: Seatuck Research Program, P.O. Box 31, Islip, NY 11751, (516) 581-6908.

Shinnecock Inlet

SEE MAP NO. 27

LOCATION:
County: [illegible]ty: Suffolk, Southampton, Ponquogue.
Map Quad: Shinn[illegible]ock [illegible] 4007274.
Directions: On barrier island beach, approx. 1/8 southwest of Shinnecock Inlet lookout tower.
Owner: Suffolk County (Shinnecock Inlet County Park West).
Significant coastal habitat: Tiana Beach.

SPECIES USE:
Community type: Dredge spoil deposition site.
Nest substrate: Spoil.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	2	2	0	0	0	0
LT	150	19	88	16	0	0	0	0

Comments:

SITE MANAGEMENT:
Land use history: The area is heavily used by recreational boaters, and boat traffic through the inlet is very heavy. The Shinnecock Inlet dredging project (SH39) benefited general navigation and commerce. The following amounts of dredge spoil were deposited at this site.

	1951	1968	1969	1973
Cubic yards	110500	270300	113000	250900

Protection: Monitored by TNC.
Positive aspects: County-owned.
Threats: Recreation, ORV traffic, human disturbance from adjacent parking lot.
Recommendations: Maintain as part of Tiana Beach significant coastal habitat. Continue to monitor and protect nesting areas as birds arrive. Restrict ORV use or limit speeds. Use snow fence to segregate nesting area from parking lot and ORV traffic. Educate the public and ORV users about beach-nesting birds.
Contacts: John Turner, Suffolk County Department of Parks, Recreation and Conservation, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767.

Southampton Beach

SEE MAP NO. 27

LOCATION:

County, Town, Village: Suffolk, Southampton, Shinnecock Hills.

Map Quad: Shinnecock Inlet, 4007274.

Directions: The site is located on the south shore barrier island just east of Shinnecock Inlet. Road D is the fourth road from the inlet heading east, perpendicular to Dune Road.

Owner: Town of Southampton.

Significant coastal habitat: Southampton Beach.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	2	4	6	6	5	10
LT	50	0	10	5	0	22	57	302

Comments:

SITE MANAGEMENT:

Land use history: Doubtful that dredging activity from the nearby Shinnecock Inlet directly affects this site.

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.

Positive aspects: Good productivity by least terns and piping plovers.

Threats: Recreation, pets (dogs), ORV traffic and predation (gulls).

Recommendations: Maintain as part of Southampton Beach significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Continue to educate the public and area residents about beach-nesting birds. Restrict pets and educate owners about beach-nesting birds. Restrict ORV use or limit speeds.

Contacts: Town of Southampton, 116 Hampton Rd., Southampton, NY 11968.
Mike Scheibel, Department of Environmental Conservation, Stony Brook Campus, Bldg. #40, Stony Brook, NY 11790, (516) 751-7900.

Warner Islands

SEE MAP NO. 27

LOCATION:
County, Town, Locality: Suffolk, Southampton.
Map Quad: Shinnecock Inlet, 4007274.
Directions: East of Ponquogue Bridge, west of Shinnecock Inlet.
Owner: Southampton Trustees.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Sand-grass/sedge/rush/herb-dead herbaceous/wrack.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	468	1130	1073	1163	1250	3900
RT	-	-	0	0	0	14	?	12
BS	-	-	68	108	126	40	76	34

Comments: Three subcolonies: east island, west island, and south island.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted.
Positive aspects:
Threats: Flooding is a serious current threat; predation, recreation, and pets are potential threats.
Recommendations:
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Middle Pond Inlet

SEE MAP NO. 28

LOCATION:

County, Town, Village: Suffolk, Southampton, Shinnecock Hills.

Map Quad: Southampton, 4007284.

Directions: Middle Pond is located on the eastern shores of Shinnecock Bay, just south of Far Pond and just north of Old Fort Pond. The colony is found on the southwestern peninsula of the pond's surrounding land mass.

Owner: Town of Southampton.

Significant coastal habitat: Far Pond and Middle Pond Inlets.

SPECIES USE:

Community type: Maritime sand beach and dune, and dredge spoil deposition site.

Nest substrate: Sand and sand/spoil.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	4	2	4	2	2	4	2
LT	82	33	10	18	13	11	95	42

Comments:

SITE MANAGEMENT:

Land use history: The Middle Pond dredging project (SH13) deposited spoil solely for beach nourishment as follows:

	1982	1983	1984	1985	1989
Cubic yards	45400	105400	11400	37000	42000

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.

Positive aspects: Relatively low recreational use due to remote location. Neighbors very helpful with monitoring the colony and protecting it from disturbance. Good predictability of breeding activity between years. Pristine habitat excellent for nesters.

Threats: Flooding, predation (gulls) and minimal recreation (boat landing).

Recommendations: Maintain as part of Far Pond and Middle Ponds Inlet significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Place future dredge spoil closer to the point so as to diminish flooding potential. Implement predator control (exclosures). Educate the public about beach-nesting birds.

Contacts: Philip Kraft, 68 Far Pond Rd., Southampton, NY 11968, (516) 473-0557.

Phillips Pond

SEE MAP NO. 29

LOCATION:

County, Town, [illegible]: Suffolk, Southampton, Wickapogue.

Map Quad: Sag Harbor, [illegible]7283.

Directions: Phillips Pond is located southeast of Wickapogue and directly east of Wickapogue Pond, and just west of Fowler St. The colony is located directly south of where Fowler St. ends.

Owner: Town of Southampton.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	2	0	0	1	2
LT	0	0	0	37	4	0	15	12

Comments:

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.

Positive aspects: Relatively good predictability of nesting activity between years.

Threats: ORV traffic and pets (dogs).

Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Restrict pets and educate owners about beach-nesting birds. Educate area residents and ORV users about beach-nesting birds.

Contacts: Town of Southampton, 116 Hampton Rd., Southampton, NY 11968.
Mike Scheibel, Department of Environmental Conservation, Stony Brook Campus, Bldg.#40, Stony Brook, NY 11790, (516) 751-7900.

Old Town Road Site

SEE MAP NO. 29

LOCATION:

County, Town, Village: Suffolk, Southampton, Wickapogue.

Map Quad: Sag Harbor, 4007283.

Directions: The site is located at the very end and just east of Old Town Rd. in Southampton, midway between Old Town Pond and Wickapogue Pond.

Owner: Town of Southampton.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	?	?	2	?	0	0	?
LT	?	?	?	25	?	13	0	?

Comments: Also called Gin Lane East and Wickapogue Pond.

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String-fenced, posted and monitored by TNC.

Positive aspects: Relatively low recreational use.

Threats: ORV traffic and recreation.

Recommendations: Designate area as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Continue to educate beach users and area residents about beach nesting birds.

Contacts: Town of Southampton, 116 Hampton Rd., Southampton, NY 11968.

Coopers Neck Pond

SEE MAP NO. 29

LOCATION:
County, Town, Locality: Suffolk, Southampton.
Map Quad: Shinnecock Inlet, 4007274.
Directions: East of Shinnecock Indian Reservation, nothern side of Meadow Lane.
Owner: Town of Southampton.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Shoreline, ocean/estuary.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	0	0	0	0	6	0	0

Comments:

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted, string-fenced, and patrolled.
Positive aspects:
Threats: Pets, vehicles, and recreation are current threat; flooding, predation, vandalism, and development are potential threats.
Recommendations:
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, Bldg. #40, SUNY, Stony Brook, NY 11790, (516)-751-7900.

Mecox Beach

SEE MAP NO. 30

LOCATION:

County, Town, Locality: Suffolk, Southampton, Mecox.

Map Quad: Sag Harbor, 4007283.

Directions: From Montauk Highway in Southampton, take Flying Point Road south and east about 2 miles to end. Site is on beach east of road end.

Owner: Town of Southampton.

Significant coastal habitat: Mecox Bay and Beach.

SPECIES USE:

Community type: Maritime sand beach and dune, intertidal beaches and mudflats, dredge spoil deposition site.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	3	4	0	2	0	0	1
LT	0	27	14	0	3	0	2	0

Comments: Some numbers represent breeding populations, although the area is mostly used as a foraging and loafing area by piping plovers, least terns and other shorebirds.

SITE MANAGEMENT:

Land use history: The Mecox Bay dredging project (SH12) was carried out for beach nourishment and spoil deposited as follows.

	1982	1989
Cubic yards	71100	volume unknown

Protection: Monitored by TNC.

Positive aspects: Site has good food resources for piping plovers and least terns, although nesting is uncommon.

Threats: ORV traffic, recreation and predation (gulls).

Recommendations: Maintain as part of Mecox Bay and Beach significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Locate future spoil deposition in area of inlet with less human disturbance. Implement predator control (exclosures). Educate the public, area residents and ORV users about beach-nesting birds.

Contacts: Town of Southampton, 116 Hampton Rd., Southampton, NY 11968.
Allen Jackson, Southampton Parks and Recreation, Southampton, NY 11968.

Sams Creek

SEE MAP NO. 30

LOCATION:
County, Town, Village: Suffolk, Southampton, Mecox.
Map Quad: Sag Harbor, NY 7283.
Directions: Plover nest was found just west of the end of Atlantic Ave., south of Sams Creek on the beach front.
Owner: Town of Southampton.
Significant coastal habitat: **Adjacent to but not included in Mecox Bay and Beach.**

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	1	0	0	2	6	2	0
LT	90	3	0	0	10	0	0	0

Comments:

SITE MANAGEMENT:
Land use history: No known dredging.
Protection: String-fenced, posted and monitored by TNC.
Positive aspects: Relatively good predictability of nesting activity between years.
Threats: Recreation, ORV traffic and pets (dogs).
Recommendations: Expand Mecox Bay and Beach significant coastal habitat to include this area, or designate the area by itself as a significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Educate the public and area residents about beach-nesting birds. Restrict ORV use or limit speeds. Restrict pets and educate owners about beach-nesting birds.
Contacts: Frank and Myra Weiser, Box 846 Surdside Dr., Bridgehampton, NY 11932, (516) 537-3166. Mike Scheibel, NYS Department of Environmental Protection, SUNY Stony Brook, Bldg. #40, Stony Brook, NY 11790, (516) 751-7900.

Sagaponack Pond

SEE MAP NO. 31

LOCATION:

County, Town, Village: Suffolk, Southampton, Sagaponack.

Map Quad: Sag Harbor, 4007283.

Directions: Sagaponack Lake is located just south of Bridgehampton in the Town of Southampton with a narrow belt of land separating it from the Atlantic Ocean. The birds nest on this narrow belt of land.

Owner: Town of Southampton.

Significant coastal habitat: Sagaponack Inlet.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	2	2	2	4	0	2
LT	20	12	6	15	0	10	5	19

Comments:

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.

Positive aspects: Good predictability of nesting activity between years.

Threats: ORV traffic, recreation, pets (dogs) and predation (gulls).

Recommendations: Maintain as part of Sagaponak Inlet significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Educate the public and area residents about beach-nesting birds. Restrict pets and educate owners about beach-nesting birds.

Contacts: Judy Froebel, 1100 Meadow Lane, Southampton, NY 11968, (516) 283-8627 is local, interested resident. Mike Scheibel, NYS Department of Environmental Conservation, SUNY Stony Brook, Bldg.#40, Stony Brook, NY 11790, (516) 751-7900.

Peters Lane

SEE MAP NO. 31

LOCATION:

County, Town, Village: Suffolk, Southampton, Sagaponack.

Map Quad: Sag Harbor, 4007283.

Directions: Peters Lane is located midway between Sagaponack Lake and Wainscott Pond, just east of Peters Pond. The colony is located on the beach at the end of the lane.

Owner: Town of Southampton.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	1	2	2	0	0	0
LT	30	0	8	28	11	3	0	0

Comments: A Seatuck and Heritage synonym for this colony is Fairfield Pond Lane.

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.

Positive aspects: Good predictability of nesting activity between years.

Threats: ORV traffic, recreation and pets (dogs).

Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Continue to educate beach users and area residents about beach-nesting birds. Restrict pets and educate owners about beach nesting birds.

Contacts: Mike Scheibel, NYS Department of Environmental Conservation, SUNY Stony Brook, Bldg.#40, Stony Brook, NY 11790, (516) 751-7900.

Pine Neck

SEE MAP NO. 32

LOCATION:

County, Town, Village: Suffolk, Southampton, Noyak.

Map Quad: Sag Harbor and Greenport, 4007283 and 4007213, respectively.

Directions: Pine Neck is located in the south part of Noyack Bay midway between Jessup Neck and North Haven. The colony is located on the peninsula north of Mill Creek, just west of Pine Neck Ave.

Owner: Town of Southampton.

Significant coastal habitat: Noyack Bay Beaches.

SPECIES USE:

Community type: Maritime sand beach and dune, and dredge spoil deposition site.

Nest substrate: Sand and sand/spoil.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	2	3	2	2	2	2
LT	30	17	82	250	600	342	80	0

Comments:

SITE MANAGEMENT:

Land use history: The Mill Creek dredging project (SH14) deposits spoil for beach nourishment, benefiting two marinas and a yacht club with 145 slips and 35 moorings.

	1982	1988	1989
Cubic yards	180700	27100	13000

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.

Positive aspects: Excellent productivity of both piping plovers and least terns. Good predictability of nesting activity between years.

Threats: Recreation, pets (dogs and cats), ORV traffic and advancing vegetational succession.

Recommendations: Maintain as part of Noyack Bay Beaches significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Educate the public, area residents and ORV users about beach-nesting birds. Restrict pets and educate owners about beach-nesting birds. Continue to restrict ORV use with snow fences, limit speeds. Manage vegetation for optimal least tern nesting.

Contacts: Town of Southampton, 116 Hampton Rd., Southampton, NY 11968.
Mike Scheibel, Department of Environmental Conservation, Stony Brook Campus, Bldg. #40, Stony Brook, NY 11790, (516) 751-7900.

Morton National Wildlife Refuge

SEE MAP NO. 32

LOCATION:
County, Town, Locality: Suffolk, Southampton.
Map Quad: Greenport, 4107213.
Directions: On Noyack Road, approximately 5 miles east of North Sea and 3.5 miles west of Sag Harbor.
Owner: U.S. Fish and Wildlife Service.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Gravel beach.
Nest substrate: Sand - gravel.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	2	0	0	2
LT	0	0	90	0	16	0	0	6
CT	-	-	40	0	0	0	0	0

Comments: Exact area used for nesting is unclear.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects: Managed as a wildlife refuge.
Threats: Unknown.
Recommendations:
Contacts: Refuge Manager, Wertheim NWR, P.O. Box 21, Shirley, NY 11967

Cow Neck

SEE MAP NO. 33

LOCATION:

County, Town, Village: Suffolk, Southampton, North Sea.
Map Quad: Southampton, 4007284.
Directions: Located on small island in Bull Head Bay between Little Sebonac and Sebonac Creeks. Birds nest on beach by Great Peconic Bay.
Owner: Private.
Significant coastal habitat: Cow Neck.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand and pebble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	3	2	4	6	4	10	6
LT	24	30	48	51	35	18	37	72
CT	-	-	0	4	0	0	0	0

Comments: Seatuck name is "Bullhead Bay."

SITE MANAGEMENT:

Land use history: Dredge spoil from the Sebonac Creek dredging project (SH35) was deposited here for beach nourishment, benefiting the Bull Head Yacht Club with its boat ramp.

	1958	1967	1968	1981
Cubic yards	110200	58700	51500	8900

Protection: "No boat landing" signs posted and site monitored by TNC in 1987 and 1988. Private ownership and resident gun club patrol the island and discourage recreation or trespassing.
Positive aspects: Relatively low recreational use due to remote, island location. ORV use light, restricted to members of the nearby hunt club. Good productivity by both piping plovers and least terns. Good predictability of nesting activity between years.
Threats: Predation (gull and raccoon), recreation (boat landing), flooding and occasional ORV traffic (from hunt club).
Recommendations: Maintain as part of Cow Neck significant coastal habitat. Implement predator control for raccoons. Continue to monitor and protect the colony as birds arrive. Continue to enhance site with proper deposition of dredge spoil. Maintain relations with local gun club for permission to post and monitor the colony. Restrict ORV use or limit speeds. Educate ORV users about beach-nesting birds.
Contacts: Peter Salm, North Sea Rd., Southampton, NY 11968, (516) 283-0302.

Sebonac Neck

SEE MAP NO. 33

LOCATION:

County, Town, Village: Suffolk, Southampton, Shinnecock Hills.

Map Quad: Southampton, 4007284.

Directions: The colony is located on the peninsula that separates Cold Spring Pond from Great Peconic Bay, from the western tip of that peninsula east to Cold Spring Rd.

Owner: Private.

Significant coastal habitat: Sebonac Neck.

SPECIES USE:

Community type: Maritime sand beach and dune, and dredge spoil deposition site, mainland.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	4	3	2	4	4	4	4
LT	0	95	42	63	160	103	41	55
CT	-	-	0	0	16	45	17	44

Comments:

SITE MANAGEMENT:

Land use history: The Cold Spring Pond dredging project (SH4) places spoil for beach nourishment, benefiting a local marina with 45 slips.

	1964	1967	1971	1975	1982	1986	1987
Cubic yards	124800	29800	23900	28300	48000	22500	7000

Protection: String- and snow-fenced, posted and monitored by TNC. Local residents and TNC regularly patrol the site.

Positive aspects: Some local cooperation with residents to protect the colony. Good predictability of nesting activity between years. Good productivity by both piping plovers and least terns.

Threats: Heavy recreation, ORV traffic, flooding, pets (dogs) and predation (cats).

Recommendations: Maintain as part of Sebonac Neck significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Continue to solicit support from residents for colony's protection. Educate the public and area residents about beach-nesting birds. Continue to restrict ORV traffic with fencing. Restrict pets and educate owners about beach-nesting birds. Continue to enhance the site (minimizing flooding) by proper dredge spoil deposition.

Contacts: Ruth and Henry Heuze, 139 Cold Spring Point Rd., Southampton, NY 11968, (516) 238-2058 are permanent residents supportive of the colony's protection.

Wooley Pond

SEE MAP NO. 34

LOCATION:

County, Town, Village: Suffolk, Southampton, Rose Grove.
Map Quad: Southampton, 4007284.
Directions: Wooley Pond is on the south shore of Little Peconic Bay, west of Rose Grove. The colony is on the peninsula, west of the pond.
Owner: Five private owners of the area.
Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Dredge spoil deposition site, mainland.
Nest substrate: Sand, spoil and cobble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	3	0	0	0	0
LT	0	-	-	13	18	9	15	18

SITE MANAGEMENT:

Land use history: Spoil from the Wooley Pond dredging project (SH50) was placed for beach nourishment, and benefits a local marina with 100 slips and 20 moorings.

Year	1964	1967	1972	1975	1979
Cubic yards	*210800*	*15200*	*12800*	*12000*	*3000*
Year	1980	1981	1983	1984	1985
Cubic yards	6700	2900	11300	6900	5000

Protection: String-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC. Nearby landowners provided with explanation for posting and protection of the colony.
Positive aspects: Good predictability of nesting activity between years.
Threats: Recreation, ORV traffic and pets (dogs).
Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony before birds arrive. Educate the public, area residents and ORV users about beach-nesting birds. Continue to restrict ORV use. Restrict pets and educate owners about beach-nesting birds. Continue to enhance site with proper deposition of dredge spoil.
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, SUNY Stony Brook, Bldg.#40, Stony Brook, NY 11790, (516) 751-7900.

Fish Cove

SEE MAP NO. 34

LOCATION:

County, Town, Village: Suffolk, Southhampton, North Sea.

Map Quad: Southampton, 4007284.

Directions: The Fish Cove site is located on the north side of Noyack Rd. along the southeast side of North Sea Harbor.

Owner: Unknown.

Significant coastal habitat: Not designated, just south of Towd Point significant coastal habitat.

SPECIES USE:

Community type: Dredge spoil deposition site, mainland.

Nest substrate: Sand/spoil.

History: The following numbers of adult least terns were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	0	0	0	0	6	0	0

Comments: Numbers represent three breeding pairs for 1987 and only loafing birds for 1988.

SITE MANAGEMENT:

Land use history: Nearby dredging at North Sea Harbor may be responsible for the spoil located at this site. North Sea spoil is deposited for beach nourishment, benefiting a local marina with 130 slips and boat ramp.

Year	1961	1964	1971	1975	1980
Cubic yards	108100	18300	47500	25000	33900

Year	1981	1982	1983	1984
Cubic yards	2900	4500	22400	15800

Protection: String-fenced, posted and monitored by TNC in 1987. Snow-fenced in 1988 by unknown party. Volunteers coordinated by TNC in 1987.

Positive aspects: Relatively low recreation due to remote location.

Threats: Vegetational succession and recreation (new condos across street).

Recommendations: Designate as significant coastal habitat. Manage vegetation for optimal least tern nesting. Educate public and area residents about beach-nesting birds. Continue to enhance site with proper deposition of dredge spoil. Continue to monitor and protect colony as birds arrive. Restrict pets and educate owners about beach-nesting birds.

Contacts: Mike Laspia, The Nature Conservancy, Mashomack Preserve, P.O. Box 850, Shelter Island, NY 11964, (516) 749-1001.

Towd Neck

SEE MAP NO. 34

LOCATION:

County, Town, Village: Suffolk, Southampton, North Sea.
Map Quad: Southampton, 4007284.
Directions: Towd Point is on the south shore of Little Peconic Bay, north of North Sea Harbor. Site is about 3/4 mile east of harbor inlet.
Owner: Town of Southampton.
Significant coastal habitat: Towd Point.

SPECIES USE:

Community type: Dredge spoil deposition site.
Nest substrate: Sand/spoil.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	1	0	0	0	0	0
LT	60	65	46	33	0	8	0	0

Comments: Seatuck name is "North Sea Harbor, Towd Neck." The colony was abandoned in 1987, probably due to ORV traffic.

SITE MANAGEMENT:

Land use history: Dredge operations from nearby North Sea Harbor project (SH16) either directly or indirectly affect breeding birds at this site. Spoil is deposited for beach nourishment, benefiting a local marina with 130 slips and a boat ramp.

Year	1961	1964	1971	1975	1980	1981
Cubic yards	108100	18300	47500	25000	33900	2900
Year	1982	1983	1984	1985	1986	1987
Cubic yards	*4500*	*22400*	*15800*	*10000*	*14000*	*10000*

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.
Positive aspects: Relatively good predictability of nesting activity between years (as long as ORV traffic is discouraged).
Threats: Recreation, ORV traffic, predation (gulls, crows) and pets (dogs).
Recommendations: Maintain as part of Towd Point significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Continue to enhance site with proper deposition of dredge spoil. Continue to restrict ORV use. Educate the public about beach-nesting birds. Restrict pets and educate owners about beach-nesting birds. Use predator exclosures.
Contacts: Dave Baldwin, Cedar Crest, Southampton, NY 11968, (516) 283-4221 a local, interested resident.

Fresh Pond Whalebone

SEE MAP NO. 34

LOCATION:

County, Town, Locality: Suffolk, Southampton, Noyack.

Map Quad: Southampton, 4007284.

Directions: Whalebone Landing is located on the south shore of Little Peconic Bay, east of Rose Grove and north of Noyac Road. The colony is between homes on East Shore Road and Little Peconic Bay, northeast of Fresh Pond.

Owner: Private.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Gravel.

History: The following numbers of adult birds were estimated in the years indicated.

	1983	1984	1985	1986	1987	1988	1989
LT	-	-	-	-	-	-	15

Comments: Residents report seeing least terns here in 1988, but no official counts were reported.

SITE MANAGEMENT:

Land use history: No known dredging. Beach is heavily used by residents for swimming and sunbathing.

Protection: None.

Positive aspects: No ORV access.

Threats: Heavy use by association members. Bayfront residents use direct access paths from homes to beach rather than main beach entrance. Predation by gulls is a current problem.

Recommendations: Negotiate management agreement with homeowner's assciation. Limit access to beach to a restricted number of routes.

Contacts: South Fork-Shelter Island Chapter, The Nature Conservancy, PO Box JJJJ, East Hampton, NY 11937, (516) 324-1330.

Red Cedar Point

SEE MAP NO. 35

LOCATION:

County, Town, Village: Suffolk, Southampton, Hampton Bays.
Map Quad: Mattituck, 4007285.
Directions: Red Cedar Point juts from the south into Flanders Bay with Cow Yard Beach just west and Red Cedar Creek Pond just east.
Owner: Private.
Significant coastal habitat: Flanders Bay Wetlands.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand and pebble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	1	1	2	2	2	2	4
LT	2	33	9	17	24	10	27	25
CT	-	-	0	0	0	0	7	0

Comments:

SITE MANAGEMENT:

Land use history: Dredge spoil deposition is currently active at nearby Red Creek Pond, but it is doubtful that Red Cedar Point is affected by this operation.
Protection: String-fenced, posted and monitored by TNC. Doris Koffman has given TNC permission to post her land and protect the birds.
Positive aspects: ORV traffic and general recreation not common since it is private land. Relatively good productivity by both piping plovers and least terns at this site. Good predictability of nesting activity between years.
Threats: Recreation (boat landing), flooding and pets (dogs).
Recommendations: Maintain as part of Flanders Bay Wetlands significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Maintain relations with Ms. Koffman to see that the colony is protected. Continue to post with "no boat landing" signs to discourage this activity. Restrict pets and educate owners about beach-nesting birds. Site could be enhanced (flooding reduced) with proper deposition of dredge spoil.
Contacts: Doris Koffman, Red Cedar Point, Hampton Bays, NY 11946, (516) 728-3980. Mike Scheibel, Department of Enviornmental Conservation, Stony Brook Campus, Bldg.#40, Stony Brook, NY 11790, (516) 751-7900.

Goose Creek

SEE MAP NO. 35

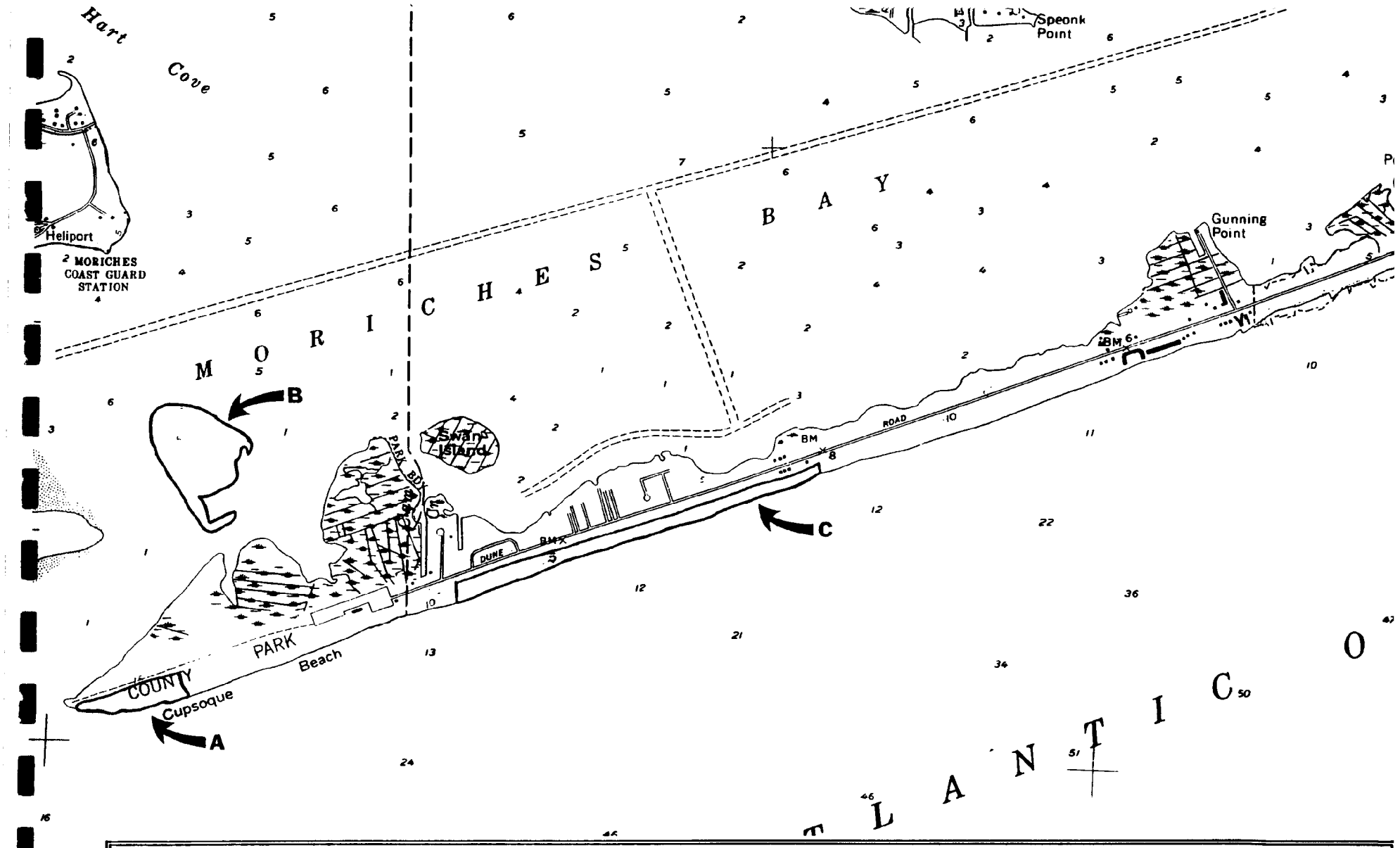
LOCATION:
County, Town, Locality: *Suffolk, Southampton.*
Map Quad: Mattituck, 4007285.
Directions: On north side of Rt. 24 (Riverhead-Hampton Bays Road), approximately 3.5 miles east of Riverhead.
Owner: Suffolk County Parks Department (Flanders Parkland).
Significant coastal habitat: Flanders Bay Wetland.

SPECIES USE:
Community type: Salt-water, non-barrier island.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	4	1	2	2	0	2	2
LT	30	16	72	4	8	0	15	33
CT	-	-	6	7	2	0	4	0

Comments: Two subcolonies: "Point" subcolony inactive since 1986; "Inlet" subcolony is active nesting site. Exact area used for nesting is unclear.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: None.
Positive aspects: Unknown.
Threats: Flooding and recreation are potential threats.
Recommendations:
Contacts: John Turner, Suffolk County Department of Parks, Recreation and Conservation, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767. Seatuck Research Program, P.O. Box 31, Islip, NY 11751, (516) 581-6908.

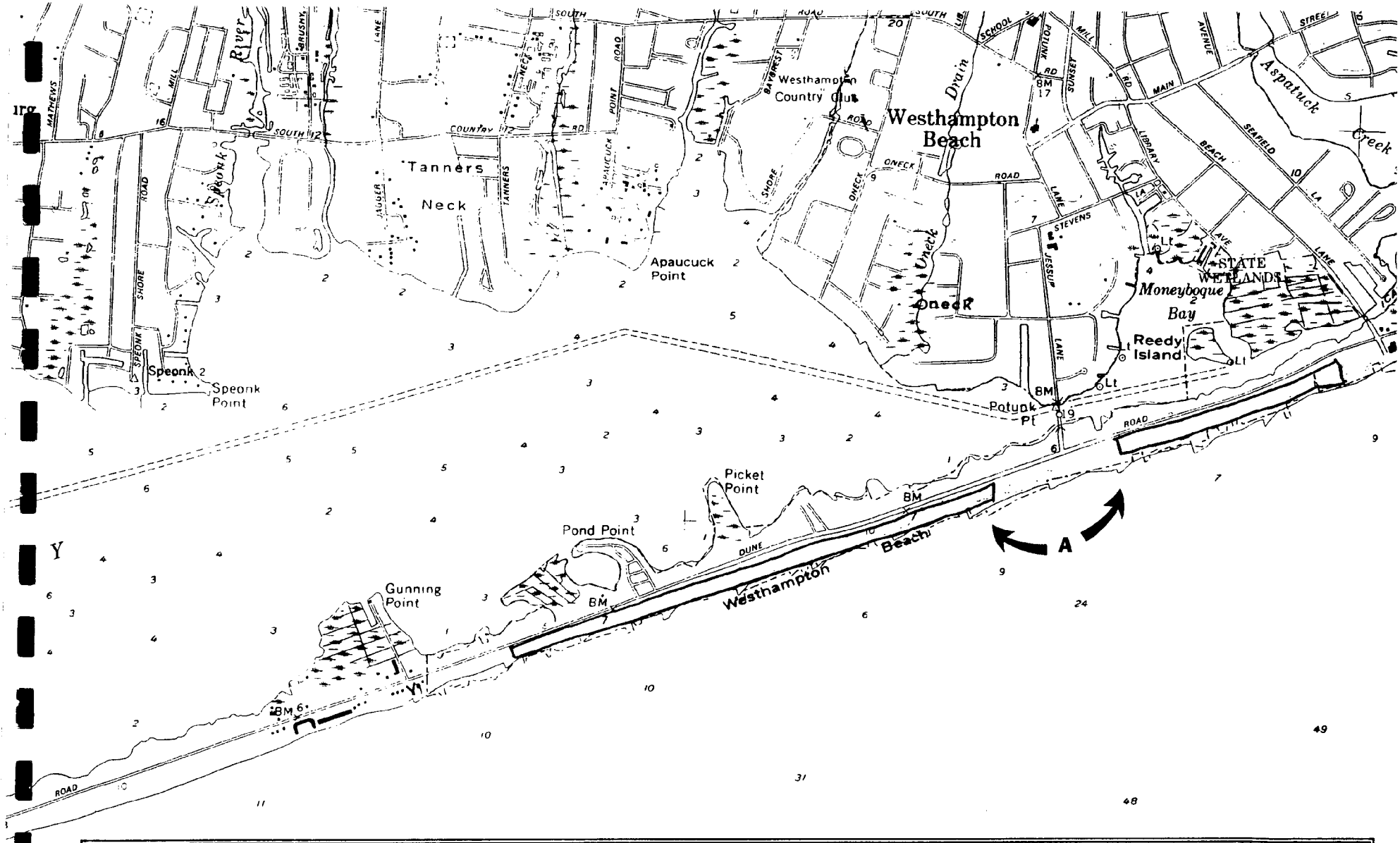


Map No. 24 Town of Southhampton

A: (See Map No. 23) B: (See Map No. 23) C: PIKES BEACH

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

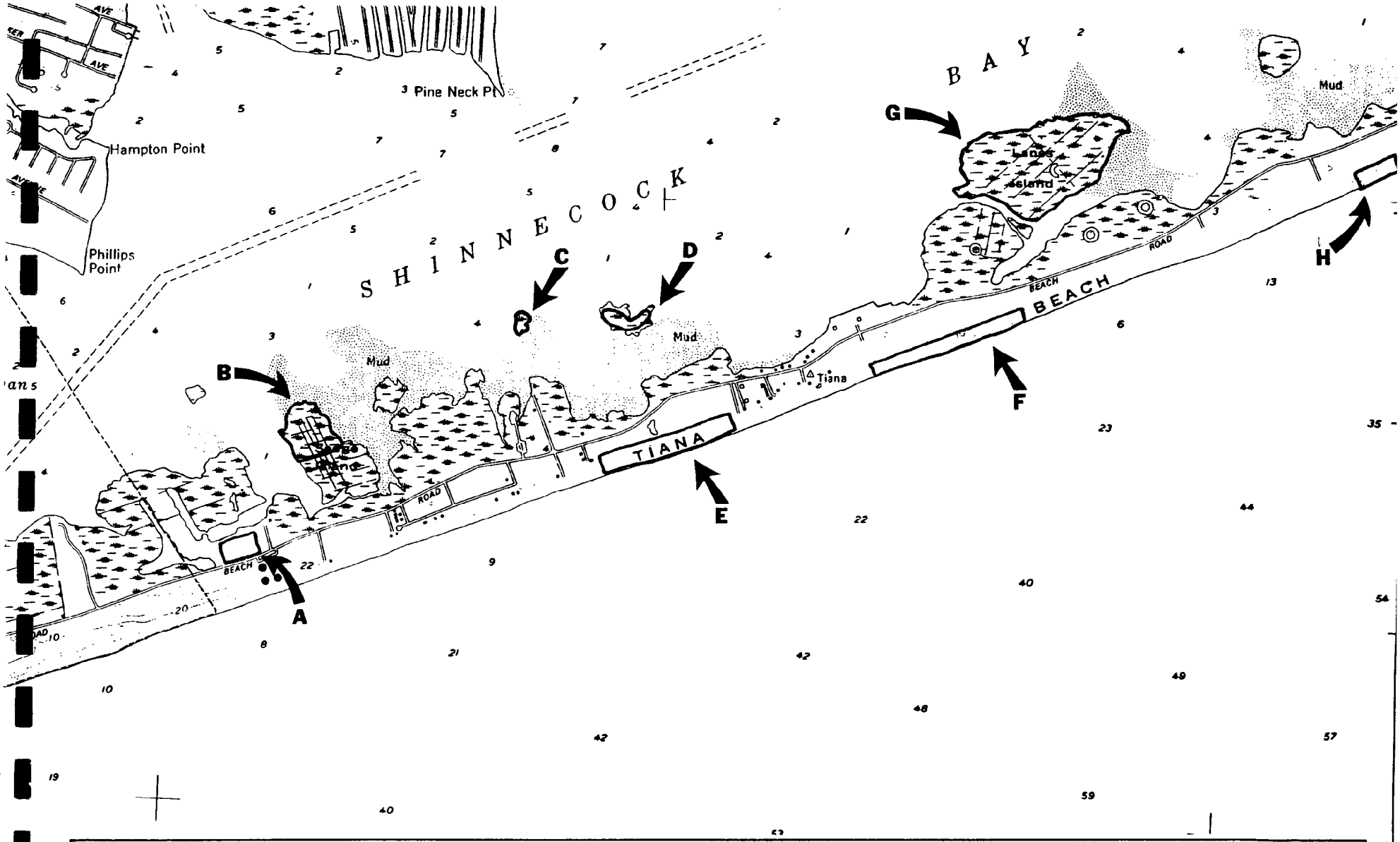


MAP NO. 25 TOWN OF SOUTHAMPTON

A: WESTHAMPTON BEACH

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Map No. 26 Town of Southampton

N

A: DUNE ROAD QUOGUE

B: SEDGE ISLAND

C: LESSER GREENBACKS ISLAND

D: GREATER GREENBACKS ISLAND

E: HOT DOG BEACH

F: TIANA BEACH

G: LANES ISLAND

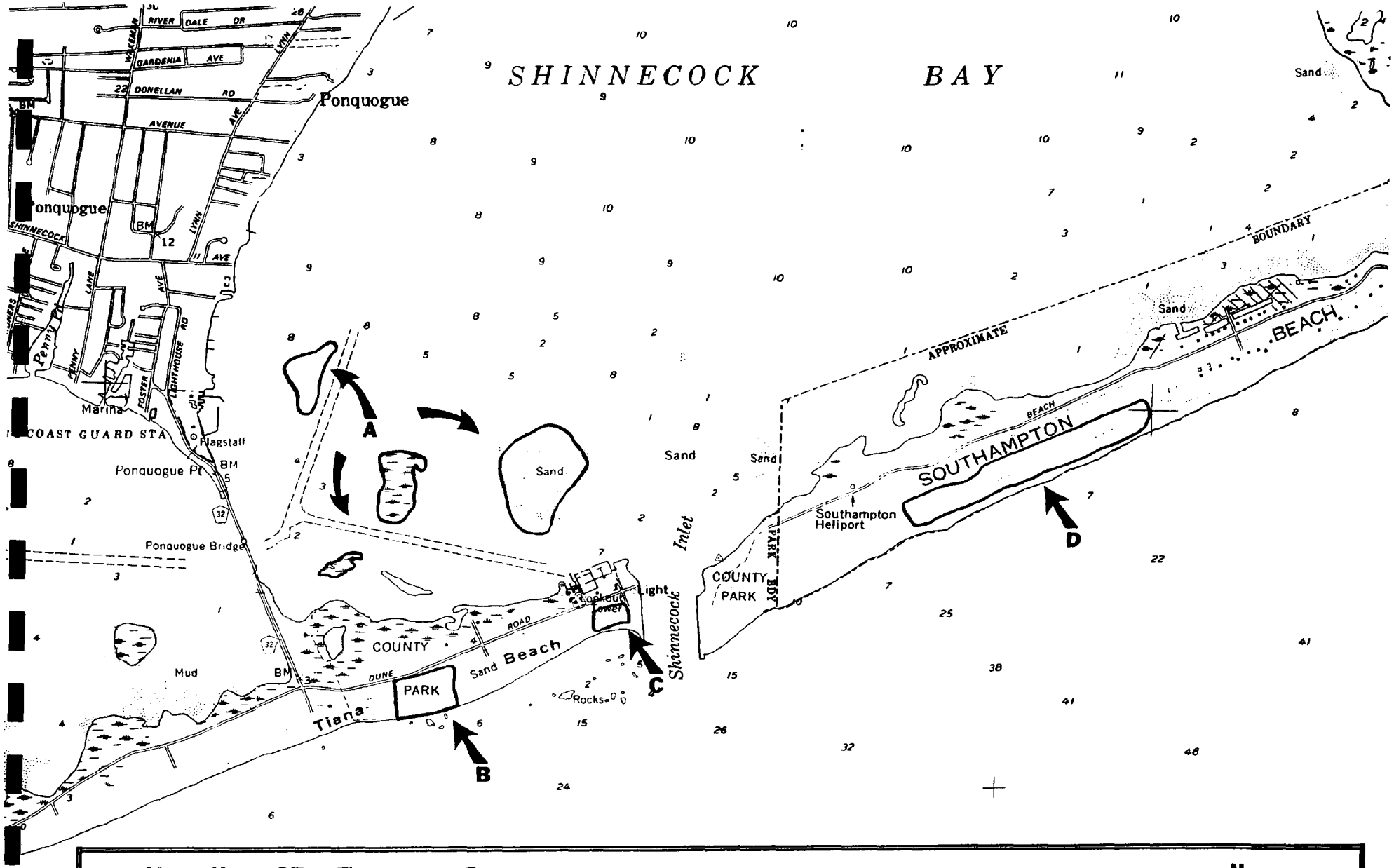
H: PONQUOGUE BEACH WEST

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



MAP NO. 27 TOWN OF SOUTHAMPTON

A: WARNER ISLANDS

B: PONQUOGUE BEACH EAST

C: SHINNECOCK INLET

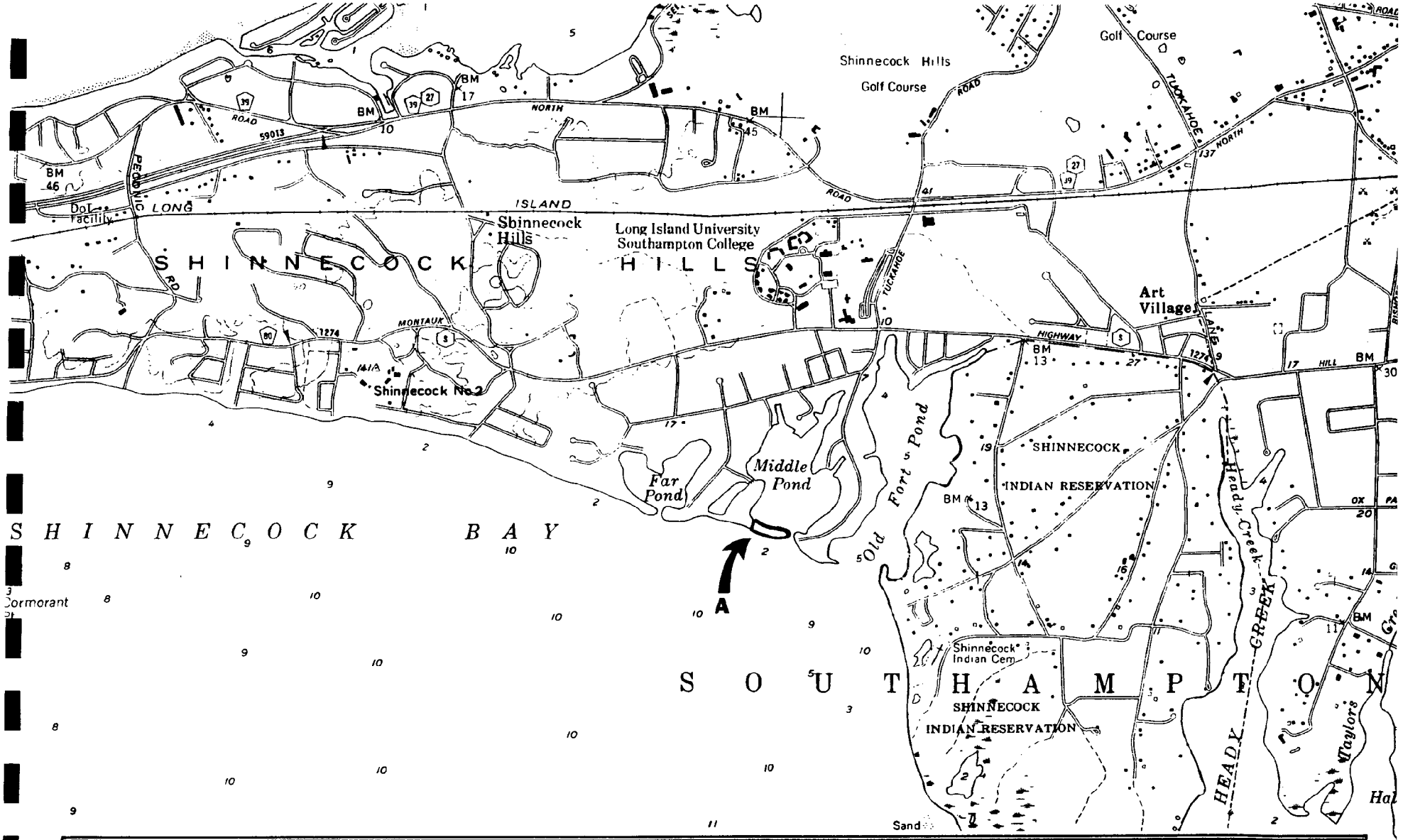
D: SOUTHHAMPTON BEACH

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

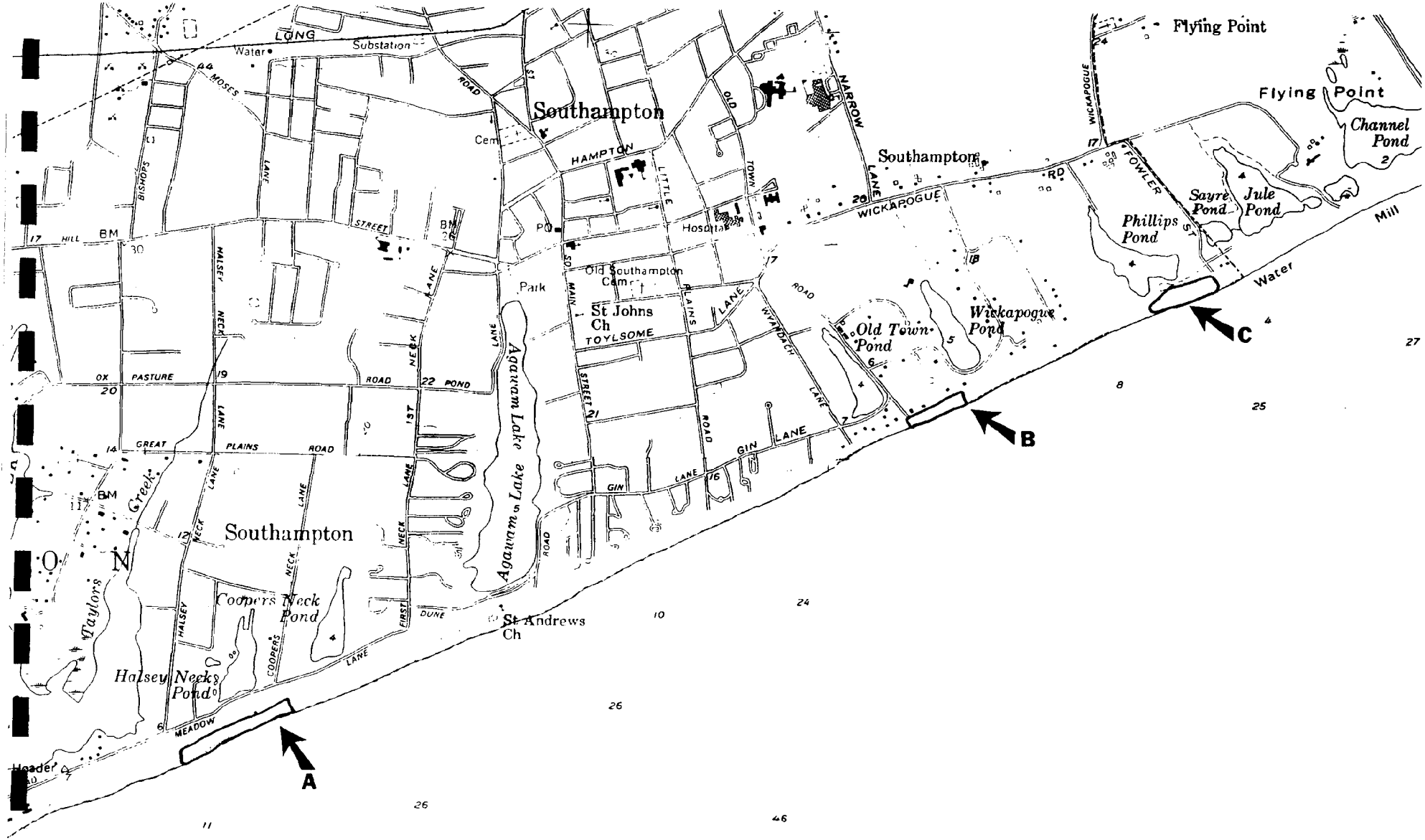


MAP NO. 28 TOWN OF SOUTHAMPTON

A: MIDDLE POND INLET

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

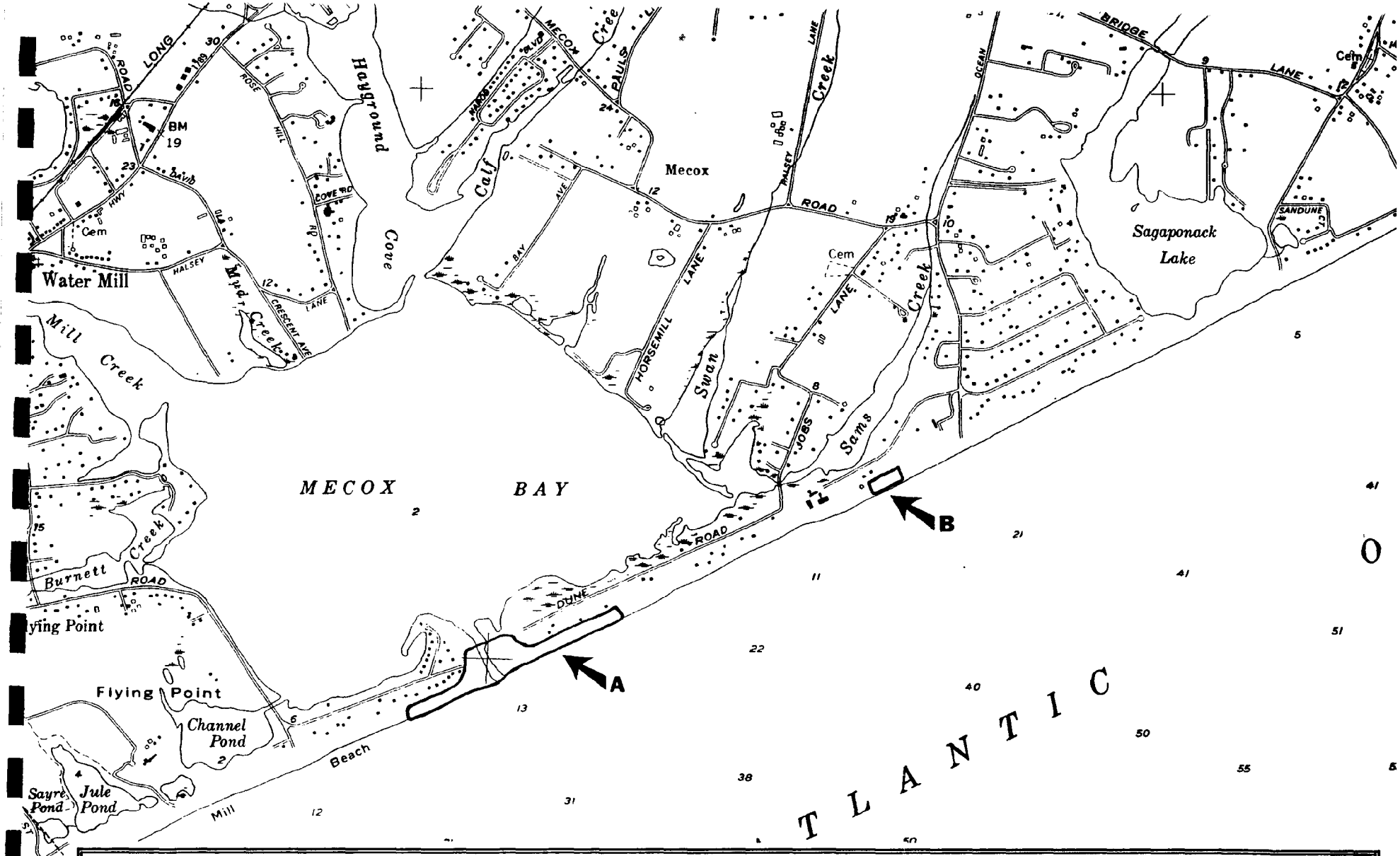


MAP NO. 29 TOWN OF SOUTHAMPTON

A: COOPERS NECK POND **B: OLD TOWN ROAD** **C: PHILLIPS POND**

N

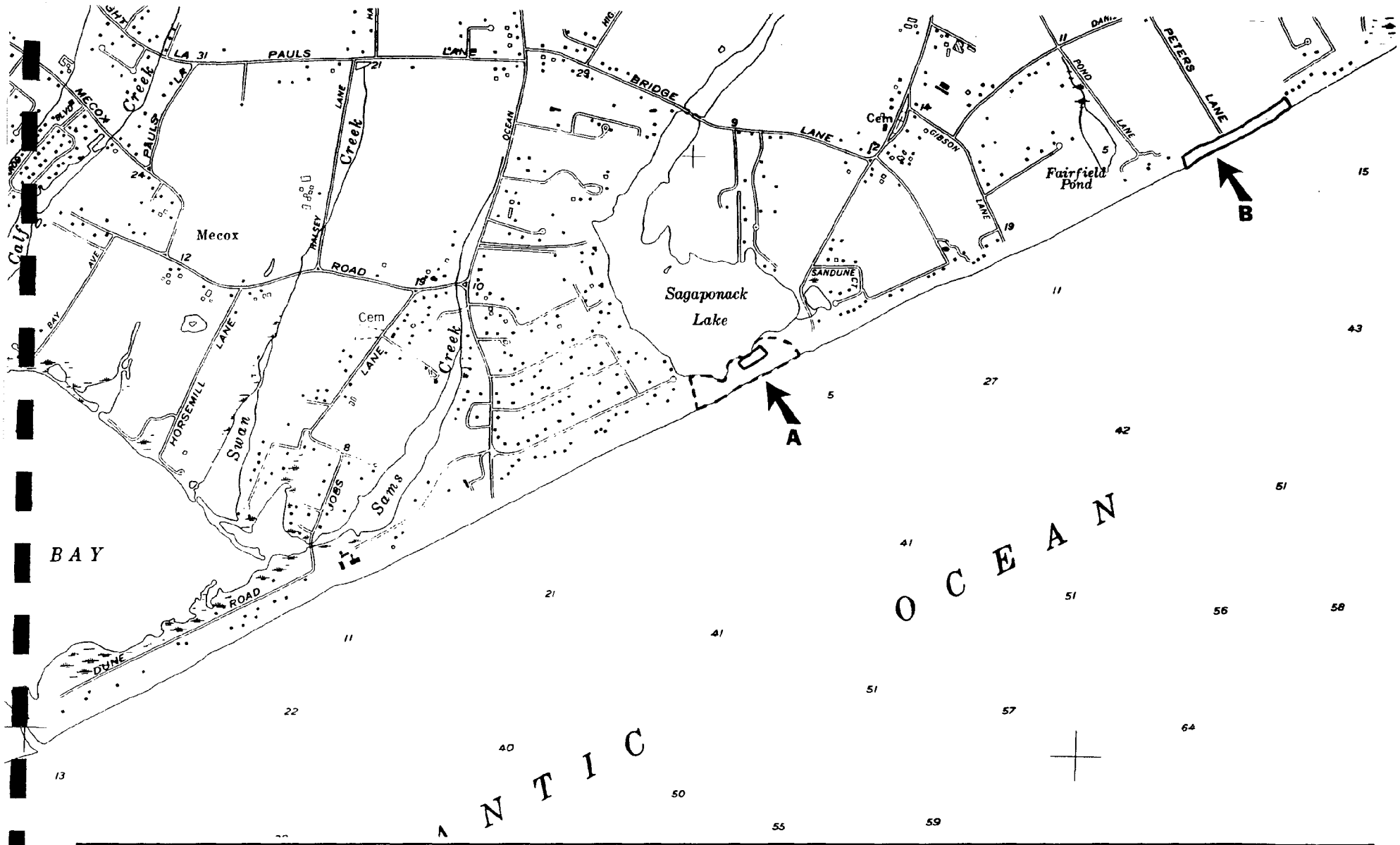
New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 **Scale: 1" = 2000'**



MAP NO. 30 TOWN OF SOUTHAMPTON

A: MECOX BEACH **B: SAMS CREEK**

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

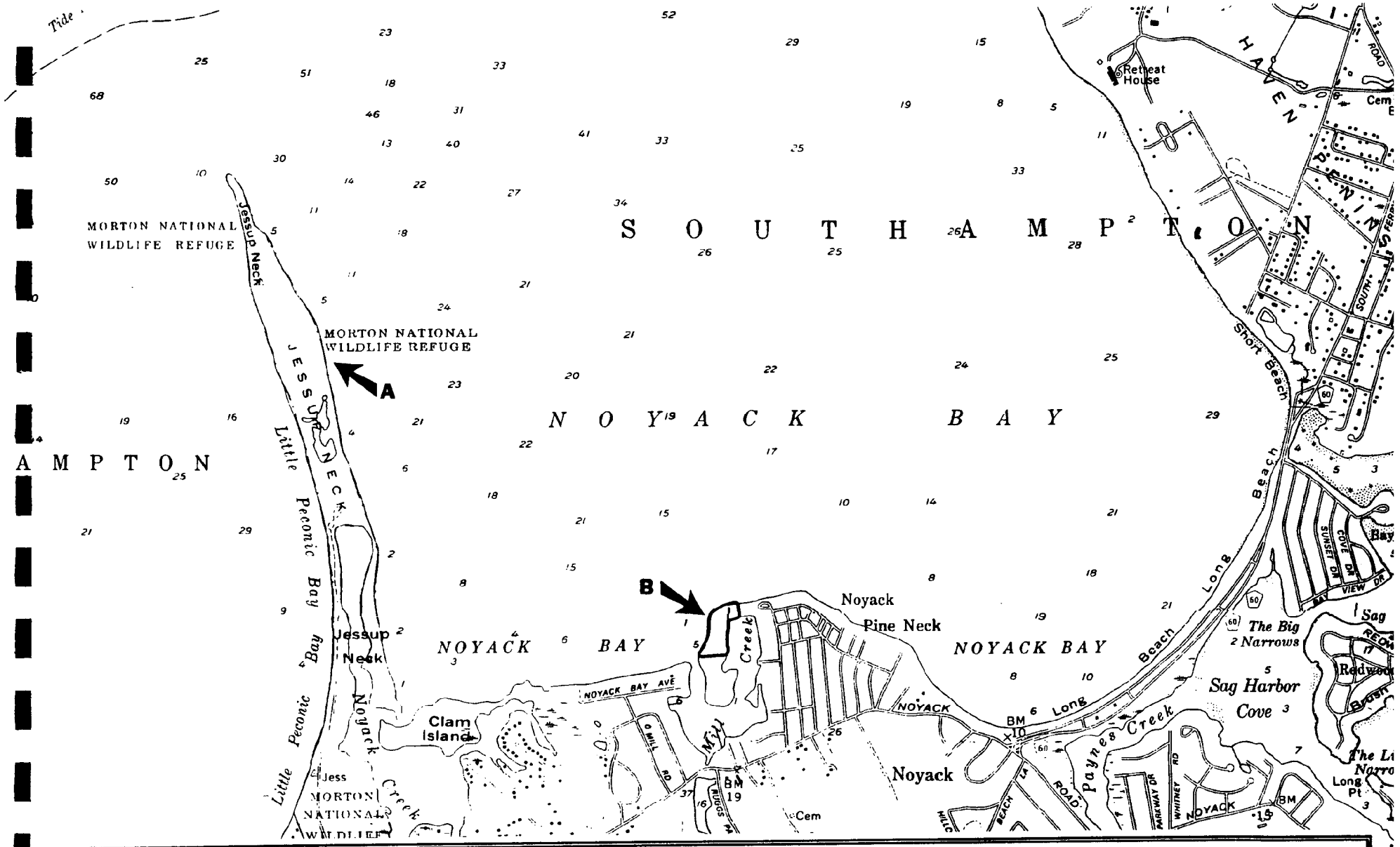


MAP NO. 31 TOWN OF SOUTHAMPTON

A: SAGAPONACK POND **B: PETERS LANE**

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

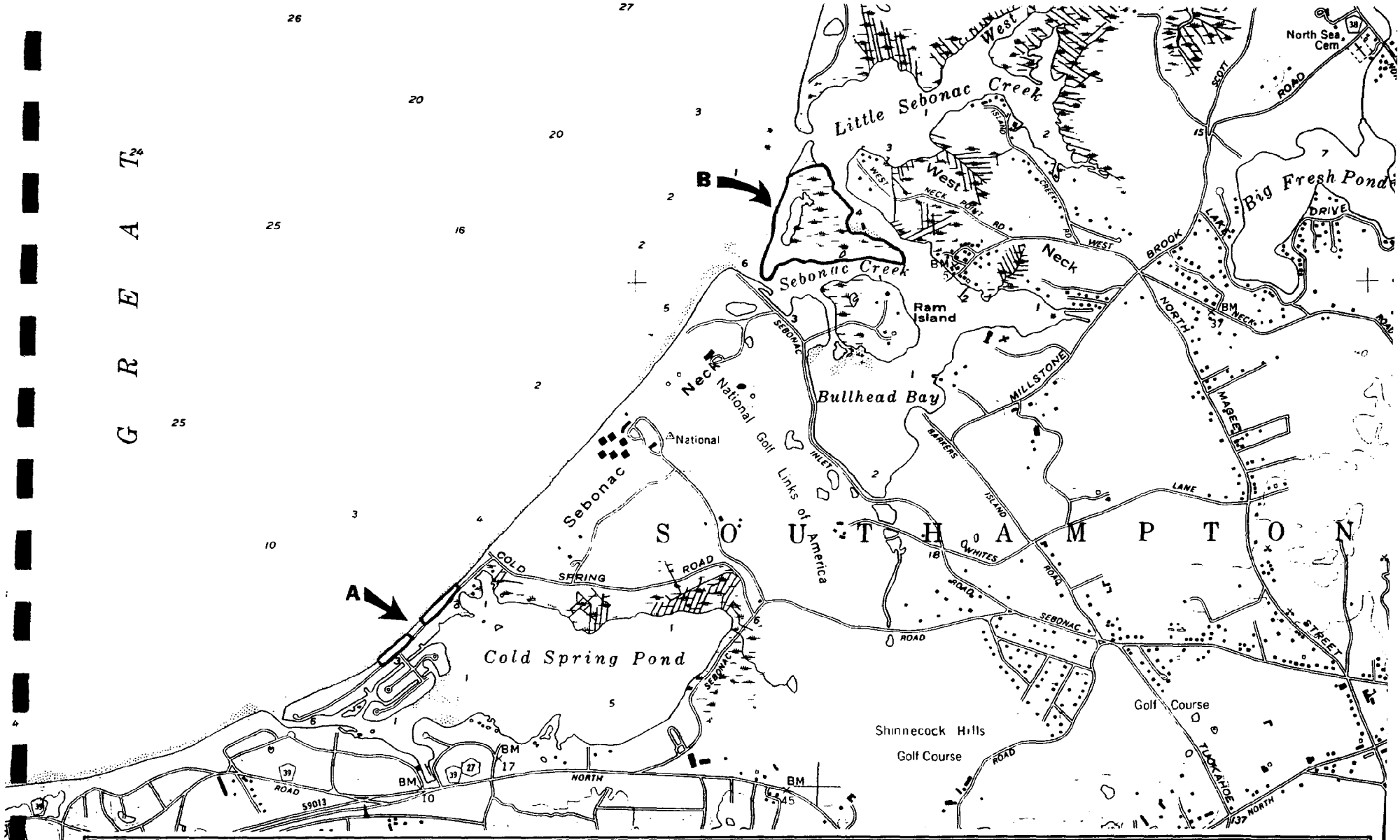


MAP NO. 32 TOWN OF SOUTHAMPTON

A: MORTON NATIONAL WILDLIFE REFUGE B: PINE NECK

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization | Prepared by T. Hart and G. Capobianco | March 1991 | Scale: 1" = 2000'

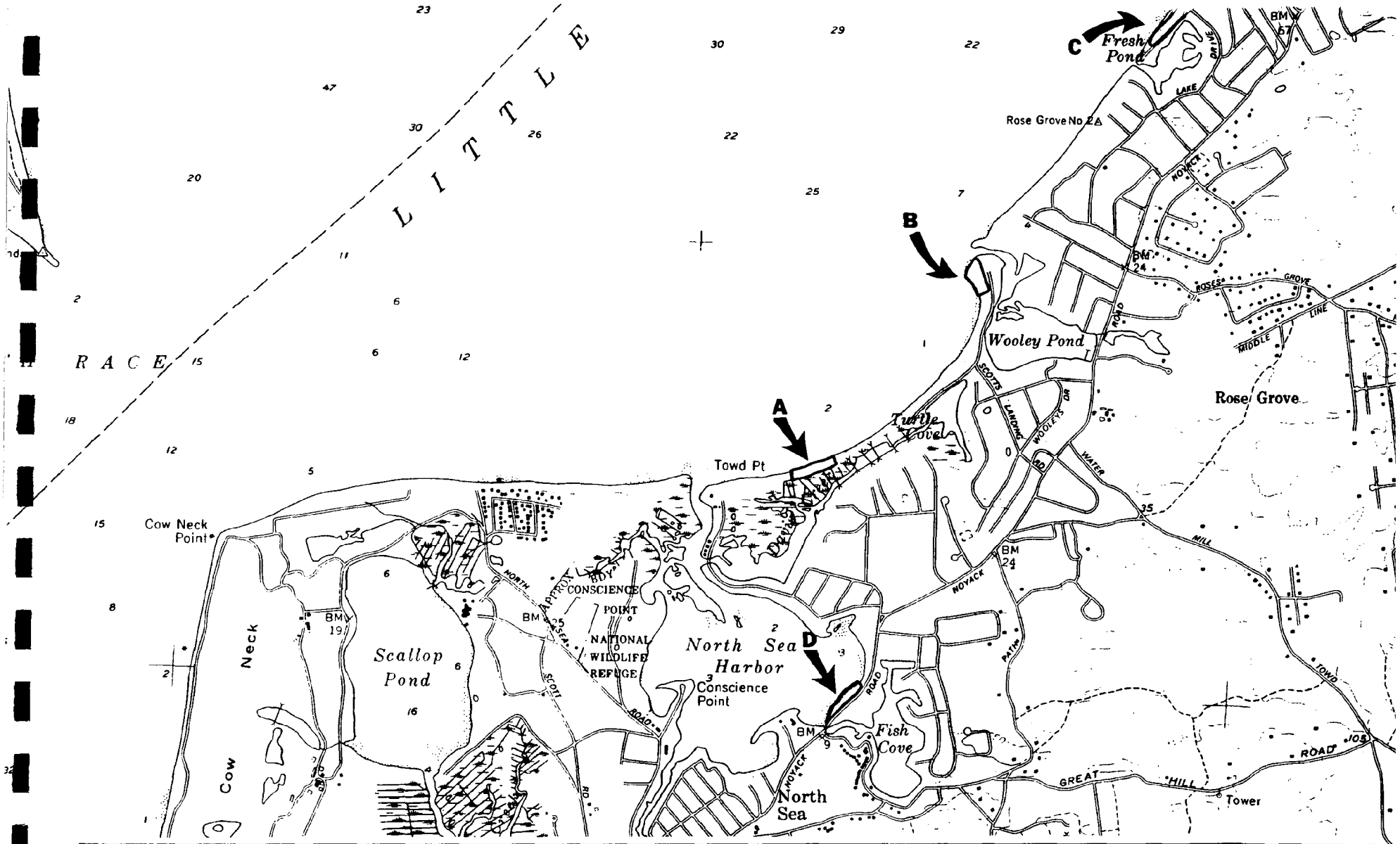


MAP NO. 33 TOWN OF SOUTHAMPTON

A: SEBONAC NECK **B: COW NECK**

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



MAP NO. 34 TOWN OF SOUTHAMPTON

A: TOWD NECK

B: WOOLEY POND

C: FRESH POND WHALEBONE

D: FISH COVE

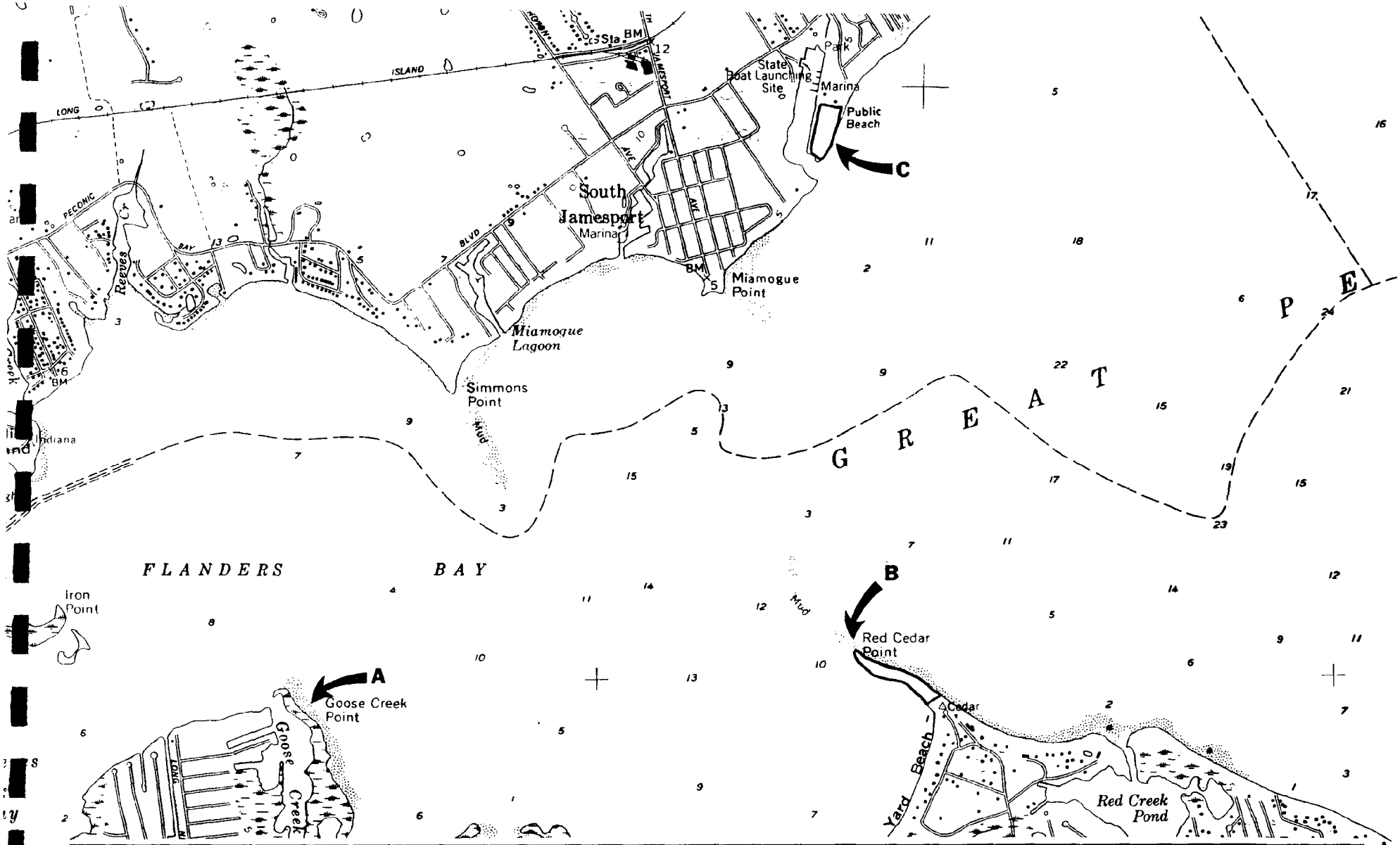
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

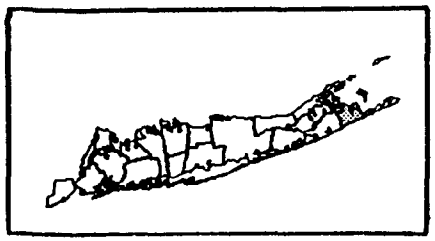


MAP NO. 35 TOWN OF SOUTHAMPTON

A: GOOSE CREEK **B: RED CEDAR POINT** **C: (See Map No. 36)**

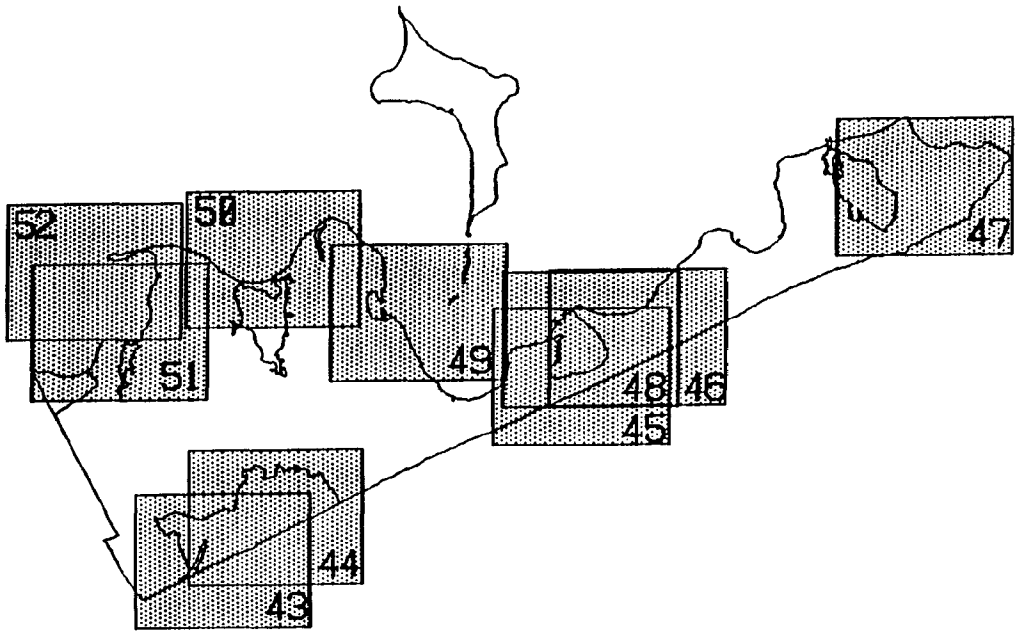
N

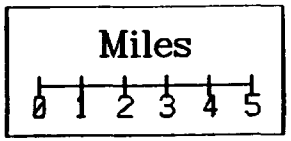
New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capoblanco March 1991 Scale: 1" = 2000'



Municipality

East Hampton





EAST HAMPTON

Map No. 43
Georgica Pond *163*

Map No. 44
Maidstone Beach *164*

Map No. 45
Napeague Beach West *165*

Map No. 46
Napeague Beach East *166*
Hither Hills East *167*

Map No. 47
Oyster Pond *168*

Map No. 48
Goff Point *169*
Hicks Island *170*

Map No. 49
Louse Point *171*
Gerard Drive Site *172*
Gerard Park *173*
Cartwright Island *174*

Map No. 50
Lionhead Beach *175*
Sammys Beach *176*

Map No. 51
Northwest Harbor *177*

Map No. 52
Cedar Point East Hampton *178*

Georgica Pond

SEE MAP NO. 43

LOCATION:

County, Town, Locality: Suffolk, East Hampton, Georgica Pond.
Map Quad: East Hampton, 4007282.
Directions: Ocean and pond beaches are at the mouth of Georgica Pond.
Owner: Town of East Hampton.
Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	2	4	4	4	13	7
LT	0	0	4	18	0	14	69	245

Comments:

SITE MANAGEMENT:

Land use history: Town trustees dredge the inlet of the pond each spring. Area is traditionally used by crabbers.
Protection: String- and snow-fenced, posted and monitored by TNC from 1986 to 1988. Volunteers also coordinated by TNC. Patrolled by Town of East Hampton.
Positive aspects: High quality habitat. Good predictability of nesting activity between years.
Threats: Flooding, heavy ORV traffic, recreation and pets.
Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Educate the public, area residents and ORV users about beach-nesting birds. Restrict ORV use or limit speeds. Patrol on site, especially during the 4th of July weekend. Enhance site to help prevent flooding by placing sand on the eastern and western land masses on either side of the inlet. Restrict pets and educate owners about beach-nesting birds.
Contacts: Larry Penny, 159 Pantigo Rd., Town of East Hampton, East Hampton, NY 11937, (516) 267-8462.

Maidstone Beach

SEE MAP NO. 44

LOCATION:
County, Town, Village: Suffolk, East Hampton, East Hampton.
Map Quad: [illegible]ton, 4007282.
Directions: Oce[illegible]th of eastern part of Town of East Hampton in front of Maidstone Beach Club and adjacent to private homes.
Owner: Town of East Hampton.
Significant coastal habitat: Atlantic Double Dune.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	2	1	0	2
LT	40	31	12	0	26	52	40	30

Comments:

SITE MANAGEMENT:
Land use history: No known dredging. Area is used as a bathing beach for the private Maidstone Club.
Protection: Snow- and string-fenced, posted and monitored by TNC from 1986 to 1988. Volunteers coordinated by TNC.
Positive aspects: Land above high tide line qwned and managed by Maidstone Club, which has given TNC permission to protect the area. Area adjacent to TNC property. Good numbers and productivity of least terns. Good predictability of nesting activity between years.
Threats: ORV traffic, recreation and pets (dogs).
Recommendations: Expand Atlantic Double Dune significant coastal habitat west to include entire site. Continue to monitor and protect colony as birds arrive. Restrict ORV use or limit speeds. Educate public and ORV users about beach-nesting birds. Restrict pets and educate owners about beach-nesting birds. Important to monitor colony during July 4 weekend. Maintain relations with manager of beach club to continue protecting colony.
Contacts: Mike Laspia, The Nature Conservancy, Mashomack Preserve, P.O. Box 850, Shelter Island, NY 11964, (516) 749-1001. Cid Cerchiai, Maidstone Beach Club, East Hampton, NY 11937, (516) 267-8462. Polly Bruckman, East Hampton Garden Club, East Hampton, NY 11937, (516) 324-4020.

Napeague Beach West

SEE MAP NO. 45

LOCATION:

County, Town, Locality: Suffolk, East Hampton, Napeague.

Map Quad: Napeague Beach, 4007281.

Directions: From Route 27, east of Amagansett, turn south onto Dolphin Road. Beach access is on left side of road. Go left (east) after reaching beach; site is about 20 yards away from access point.

Owner: Private.

Significant coastal habitat: Napeague Beach.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	0	4	1	2	0	0
LT	-	18	12	22	23	27	0	0

Comments: Reasons for lack of least tern nesting in 1988 unknown. Plovers used a relatively large area for feeding after chicks hatched.

SITE MANAGEMENT:

Land use history: No known dredging. Area is used as a private and public bathing beach.

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC. Good volunteer tern warden lived nearby and patrolled the colony often.

Positive aspects: Nearly pristine habitat. Relatively low recreational use. Neighbors cooperative, contribute to protection efforts. Good predictability of nesting activity between years.

Threats: ORV traffic and predation (fox, gulls).

Recommendations: Maintain as part of Napeague Beach significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Implement predator control (exclosures). Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.

Contacts: Larry Penny, 159 Pantigo Rd., Town of East Hampton, East Hampton, NY 11937, (516) 267-8462.

Napeague Beach East

SEE MAP NO. 46

LOCATION:

County, Town, Locality: Suffolk, East Hampton, Napeague.
Map Quad: Gardiners Island East, 4007211.
Directions: Take Route 27 east out of Amagansett, go 5 miles to Navahoe Lane, go south on Navahoe Lane to end. Site is on beach south of road.
Owner: Town of East Hampton.
Significant coastal habitat: East of and adjacent to Napeague Beach, but not included.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	-	2	6	5	4	1	2
LT	-	-	26	37	29	9	0	9

Comments: Colony was not established in 1988 due to heavy recreational use and ORV traffic.

SITE MANAGEMENT:

Land use history: No known dredging. Area is used as a private and public bathing beach.
Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.
Positive aspects: Nearly pristine habitat is easily protected from human disturbance.
Threats: ORV traffic and predation (fox, gulls).
Recommendations: Expand Napeague Beach significant coastal habitat to include site. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Implement predator control (or exclosures). Educate the public and ORV users about beach-nesting birds.
Contacts: Larry Penny, 159 Pantigo Rd., Town of East Hampton, East Hampton, NY 11937, (516) 267-8462. George Larson, Manager of East End L.I. Parks, Hither Hills State Park, Montauk, NY 11954, (516) 668-2554.

Hither Hills East

SEE MAP NO. 46

LOCATION:

County, Town, Village: Suffolk, East Hampton, Montauk Beach.

Map Quad: Gardiners Island East, 4107211.

Directions: From junction of Montauk Highway and Old Montauk Highway, go east on Old Montauk Highway approx. 2 1/8 miles to Hither Hills State Park Ranger Station, on the south side of the road. Park in lot. Site is located approx. 200 yards southwest from ranger station, on beach

Owner: NYS Office of Parks, Recreation, and Historic Preservation (Hither Hills State Park).

Significant Coastal Habitat: Napeague Beach.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	-	-	-	-	-	2	?

Comments: First record of nesting piping plovers at this site in 1988.

SITE MANAGEMENT:

Land use history: No known dredging. Area used as a public bathing beach.

Protection: String-fenced, posted and monitored by TNC.

Positive aspects: Habitat quality is good.

Threats: ORV traffic, recreation and predation (gulls).

Recommendations: Maintain as part of Napeague Beach significant coastal habitat. Continue to monitor and protect nesting areas as birds return. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds. Implement predator control (exclosures).

Contacts: George Larson, Manager, East End Parks, Hither Hills State Park, Montauk, NY 11954, (516) 668-2554. South Fork-Shelter Island Chapter, The Nature Conservancy, P.O. Box JJJJ, East Hampton, NY 11937, (516) 324-1330.

Oyster Pond

SEE MAP NO. 47

LOCATION:

County, Town, Locality: Suffolk, East Hampton, Montauk Point.

Map Quad: Montauk Point, 4107118.

Directions: Follow Route 27 to the east terminus. Two miles southwest of turnaround, look for dirt road. Go north to end of road. Site is on north shore between Oyster Pond and Block Island Sound.

Owner: New York State Parks, Recreation, and Historic Preservation (Montauk Point State Park).

Significant coastal habitat: Oyster Pond.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand/cobble.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	-	0	0	0	0	0	0
LT	-	-	80	0	0	0	0	0
CT	-	-	80	0	0	0	0	0

Comments:

SITE MANAGEMENT:

Land use history: No known dredging.

Protection: Monitored by TNC.

Positive aspects: Owned and managed by New York State Parks.

Threats: ORV traffic and flooding.

Recommendations: Maintain as part of Oyster Pond significant coastal habitat. Monitor and protect the colony if birds arrive. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.

Contacts: George Larson, Hither Hills State Park, Montauk, NY 11954, (516) 668-2554.

Goff Point

SEE MAP NO. 48

LOCATION:

County, Town, Village: Suffolk, East Hampton, Napeague.

Map Quad: Gardiners Island East, 4107211.

Directions: Peninsula extending west and south from extreme northwestern corner of Hither Hills State Park. The tip is the northern shore of the navigable entrance to Napeague Harbor.

Owner: NYS Office of Parks, Recreation, and Historic Preservation (Hither Hills State Park).

Significant coastal habitat: Napeague Harbor.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand and pebble.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	-	0	0	2	0	0	0
LT	-	-	75	45	0	18	19	25
RT	-	-	0	0	0	2	0	0
CT	-	-	0	0	0	0	3	0

Comments:

SITE MANAGEMENT:

Land use history: The inlet to Napeague Harbor was dredged in 1967 (342,000 cy), and the spoil was placed in an upland position on Hicks Island, benefiting the town boat ramp at Lazy Point. Spoil could be used at Goff Point for site enhancement in the future if necessary.

Protection: String- and snow-fenced, posted and monitored by TNC from 1986 to 1988. Patrolled by rangers at Hither Hills State Park.

Positive aspects: Owned and managed by New York State Parks. Relatively low recreational use due to remote location. Good predictability of nesting activity by least terns between years.

Threats: ORV traffic (fishermen), unsuitable substrate (very compacted), predation (gulls) and minimal recreation (boat landing).

Recommendations: Maintain as Napeague Harbor significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Educate fishermen about beach-nesting birds and/or restrict their ORV use and limit speeds. Enhance site with proper deposition of dredge spoil, covering the compacted soil with better materials.

Contacts: George Larson, Hither Hills State Park, Montauk, NY 11954, (516) 668-2554.

Hicks Island

SEE MAP NO. 48

LOCATION:

County, Town, Village: Suffolk, East Hampton, Napeague.
Map Quad: Gardiners Island East, 4107211.
Directions: The northeastern edge of Napeague Harbor with the eastern lobe making up the southern shore of Napeague Harbor entrance channel.
Owner: NYS Office of Parks, Recreation, and Historic Preservation (Hither Hills State Park).
Significant coastal habitat: Napeague Harbor.

SPECIES DATA:

Community type: Maritime sand beach and dune and dredge spoil.
Nest substrate: Sand/cobble, sand/pebble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	2	1	0	3	2	4
LT	-	45	46	0	0	27	0	47
RT	-	-	80	0	0	0	18	40
CT	-	-	600	0	0	18	360	476
BS	-	-	0	0	0	0	0	32

Comments:

SITE MANAGEMENT:

Land use history: The Napeague Harbor dredging project (EH3) benefits the town boat ramp at Lazy Point Park. Dredge spoil (342,000 cubic yards) was deposited on an upland site on Hicks Island in 1967.
Protection: String-fenced, posted and monitored by TNC in 1987.
Positive aspects: Owned and managed by New York State Parks. Relatively low recreational use due to remote location (island). No ORV use. Good predictability of nesting activity between years.
Threats: Predation (rats and gulls), advancing vegetational succession and recreation (occasional boat landing).
Recommendations: Maintain as part of Napeague Harbor significant coastal habitat. Implement predator control of rats. Manage vegetation for optimal least tern and piping plover nesting. Continue to monitor and protect the colony as birds arrive. Enhance site with proper deposition of dredge spoil. Manage historic nesting areas for optimal roseate tern nesting.
Contacts: George Larson, Hither Hills State Park, Montauk, NY 11954, (516) 668-2554.

Louse Point

SEE MAP NO. 49

LOCATION:

County, Town, Village: Suffolk, East Hampton, Springs.
Map Quad: Gardiners Island West, 4107212.
Directions: Louse Point is located east of Wood Tick Island, and is the southernmost peninsula of Accabonac Harbor, bordered to the east by Napeague Bay.
Owner: Town of East Hampton.
Significant coastal habitat: Accabonac Harbor.

SPECIES USE:

Community type: Dredge spoil deposition site.
Nest substrate: Sand/spoil.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	2	0	0	4	4	4
LT	40	0	10	0	0	17	0	0

Comments: Least terns seen here in 1988, but no nesting occurred. Seatuck name is "Accabonac Harbor."

SITE MANAGEMENT:

Land use history: The Accabonac Harbor dredging project deposited spoil for beach nourishment, benefiting two town boat ramps. Cannot be sure how much of this spoil was actually placed on Louse Point.

	1982	1983	1984	1985	1986
Cubic Yards	205000	74000	17000	30000	30000

Protection: String-fenced, posted and monitored by TNC.
Positive aspects: Owned by town, able to manage vegetation.
Threats: Recreation, ORV traffic, advancing vegetational succession, predation (unknown) and pets (dogs).
Recommendations: Maintain as part of Accabonac Harbor significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Educate beach users, area residents and ORV users about beach-nesting birds. Restrict ORV use or limit speeds. Manage vegetation for optimal least tern nesting. Determine predator and implement predator control if appropriate. Restrict pets and educate owners about beach-nesting birds. Enhance site with proper deposition of dredge spoil.
Contacts: Mike Scheibel, Department of Environmental Conservation, Stony Brook Campus, Bldg.#40, Stony Brook, NY 11970, (516) 751-7900. Larry Penny, Town of East Hampton, 159 Pantigo Road, East Hampton, NY 11937, (516) 267-8462.

Gerard Drive Site

SEE MAP NO. 49

LOCATION:
County, Town: Suffolk, East Hampton, Springs.
Map Quad: Gardiners [illegible]est, 4107112.
Directions: Gerard Point is across the Accabonac Harbor inlet from Louses Point, and in the southern terminus to the northern peninsula enclosing Accabonac Harbor. This colony is at the very tip of the point.
Owner: Town of East Hampton.
Significant coastal habitat: Accabonac Harbor.

SPECIES USE:
Community type: Maritime sand beach and dune, and dredge spoil deposition site.
Nest substrate: Sand/spoil.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	4	4	4
LT	-	-	-	-	-	-	-	4

Comments: Fourteen roseate terns were seen here in 1988, but they have never nested here.

SITE MANAGEMENT:
Land use history: The Accabonac Harbor dredging project (EH1) deposited spoil for beach nourishment, benefiting two town boat ramps. Spoil taken from the inlet may be placed on this site and Louses Point.

	1982	1983	1984	1985	1989
Cubic Yards	205000	74000	17000	30000	30000

Protection: String-fenced, posted and monitored by TNC in 1988. Volunteers also coordinated by TNC. Neighbors regularly watching site.
Positive aspects: Good predictability of nesting activity between years.
Threats: Recreation, ORV traffic, pets (dogs) and advancing vegetational succession.
Recommendations: Maintain as part of Accabonac Harbor significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Educate the public, area residents and ORV users about beach-nesting birds. Restrict pets and educate owners about beach nesting birds. Continue to enhance site with the proper deposition of dredge spoil. Manage vegetation for least tern nesting. Restrict ORV use or limit speeds.
Contacts: Larry Penny, 159 Pantigo Rd, East Hampton, NY 11937, (516) 267-8462.

Gerard Park

SEE MAP NO. 49

LOCATION:
County, Town, Village: Suffolk, East Hampton, Springs.
Map Quad: Gardiners Island West, 4107212.
Directions: Town park and adjacent public beach approximately 1/2 of a mile north of tip of peninsula that encloses a major portion of Accabonac Harbor.
Owner: Town of East Hampton.
Significant coastal habitat: Accabonac Harbor.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand and pebble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	4	0	2	2	2
LT	-	-	-	4	0	0	0	0

Comments:

SITE MANAGEMENT:
Land use history: Dredging does occur a half mile south at the Accabonac Harbor inlet, but this activity probably does not affect this site.
Protection: String-fenced, posted and monitored by TNC in 1988.
Positive aspects: Owned and managed by the Town of East Hampton.
Threats: ORV traffic (fishermen), recreation, pets (dogs) and gulls.
Recommendations: Maintain as part of Accabonac Harbor significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds. Restrict pets and educate owners about beach-nesting birds.
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, SUNY Stony Brook, Bldg.#40, Stony Brook, 11970, (516) 751-7900. Larry Penny, 159 Pantigo Rd., East Hampton, NY 11937, (516) 267-8462.

Cartwright Island

SEE MAP NO. 49

LOCATION:
County, Town, Locality: Suffolk, East Hampton, Gardiners Island.
Map Quad: Gardiners Island East, 4107211.
Directions: Peninsula at the extreme southern end of Gardiners Island.
Owner: Private.
Significant coastal habitat: Gardiners Island.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	0	0	0	0	2	-	0
CT	-	-	40	285	250	738	-	0
RT	-	-	-	57	5	133	-	0
BS	-	-	-	42	36	53	-	0

Comments: Seatuck name is "Gardiner's Island, Cartwright Point subcolony."

SITE MANAGEMENT:
Land use history: No known dredging.
Protection: Birds on this private island have never been otherwise protected.
Positive aspects: No recreation due to the remote location of the private island. Good predictability of nesting activity between years.
Threats: *Predation (gulls), flooding and recreation (minimal boat landing).*
Recommendations: Maintain as part of Gardiners Island significant coastal habitat. Seek management agreement (if appropriate) with private owners to protect beach-nesting birds. Implement predator control (exclosures).
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, SUNY Stony Brook, Bldg. #40, Stony Brook, NY 11790, (516) 751-7900.

Lionhead Beach

SEE MAP NO. 50

LOCATION:

County, Town, Village: Suffolk, East Hampton, Fireplace.

Map Quad: Gardiners Island West, 4107212.

Directions: The site is located just north of Maidstone Beach and just south of Hog Creek inlet at the end of Isle of Wight Road.

Owner: Town of East Hampton.

Significant coastal habitat: Northeast of Three Mile Harbor and northwest of Accabonac Harbor significant coastal habitats, but not included in either.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	2	1	0	2	0	0
LT	0	28	16	0	0	0	0	0

Comments:

SITE MANAGEMENT:

Land use history: Dredging activity occurs southwest at Three Mile Harbor inlet, but this activity probably does not affect Lionhead Beach.

Protection: No protection as birds have not nested here recently.

Positive aspects: Suitable habitat.

Threats: Heavy recreation, pets (dogs) and flooding.

Recommendations: Designate as significant coastal habitat. Monitor the site in early May since recreation may discourage nesting; early protection may allow birds to nest successfully. Educate the public and area residents about beach-nesting birds. Restrict pets and educate owners about beach-nesting birds.

Contacts: Larry Penny, 159 Pantigo Rd., East Hampton, NY 11937, (516) 267-8462.

Sammys Beach

SEE MAP NO. 50

LOCATION:

County, Town, Village: Suffolk, East Hampton, Three Mile Harbor.
Map Quad: Gardiners Island West, 4107212.
Directions: On northwest shore of Three Mile Harbor, west of jetty.
Owner: Town of East Hampton.
Significant coastal habitat: Three Mile Harbor.

SPECIES USE:

Community type: Maritime sand beach and dune, dredge spoil deposition site.
Nest substrate: Sand/spoil, sand and pebble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	1	0	0	0	0	0
LT	200	175	60	3	31	20	18	5
CT	-	-	52	88	28	75	39	50
RT	-	-	0	0	0	2	0	0

Comments: Common terns nest on a nearby marsh "subcolony". Roseate terns and black terns are also regularly seen here, although nests were never found. Seatuck name is "Three Mile Harbor."

SITE MANAGEMENT:

Land use history: Area is used by local boaters and recreationalists. The Three Mile Harbor dredge project (EH6) has deposited spoil for beach nourishment on both sides of the inlet (including Sammys Beach). Dredging benefits 10 marinas with 643 slips, a commercial fishing dock, three town boat ramps and slips at a county/town facility.

	1958	1961	1965	1974	1975
Cubic Yards	82000	35000	106000	83000	90000

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers coordinated by TNC.
Positive aspects: Good predictability of nesting activity between years. Good productivity by least terns.
Threats: Heavy ORV traffic, recreation (fireworks display on 4th of July), predation (unknown) and advancing vegetational succession.
Recommendations: Maintain as part of Three Mile Harbor significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Continue to enhance site with proper deposition of dredge spoil. Manage vegetation for optimal least tern and piping plover nesting. Restrict ORV use or limit speeds. Determine type of predator and implement control. Educate the public and ORV users about beach-nesting birds.
Contacts: Larry Penny, 159 Pantigo Rd, East Hampton, NY 11937, (516) 267-8462.

Northwest Harbor

SEE MAP NO. 51

LOCATION:

County, Town, Locality: Suffolk, East Hampton, Mill Hills Estate.

Map Quad: Greenport and Gardiners Island West, 4107213 and 4007212, respectively.

Directions: From Sag Harbor take 114 southeast 2 1/4 miles to Swamp Road. Turn east, go for about 2 miles to Northwest Landing road. Site is at end of road on bank of Northwest Creek.

Owner: Suffolk County (Northwest Harbor County Park).

Significant coastal habitat: Northwest Creek.

SPECIES USE:

Community type: Maritime sand beach and dune, dredge spoil deposition site.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	0	0	0	0	20	48	20

Comments: Least terns were not seen since 1977 until colony was found in 1987. Piping plovers have been seen, but have not nested.

SITE MANAGEMENT:

Land use history: Dredging from the Northwest Harbor project modified inlet orientation, placing spoil on a barrier spit. Town boat ramp (Northwest Landing Road) and informal moorings benefited.

	1961	1965	1971
Cubic Yards	357000	49000	18000

Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers also coordinated by TNC.

Positive aspects: Owned and managed by Suffolk County Parks. ORV access easily restricted. Relatively low recreational use.

Threats: Advancing vegetational succession, recreation (hiking, boaters, fishermen) and ORV traffic.

Recommendations: Maintain as part of Northwest Creek significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal least tern nesting. Enhance site with proper deposition of dredge spoil. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.

Contacts: John Turner and Al Brenner, Suffolk Co. Dept. of Parks, Recreation and Conservation, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767 or (516) 324-2195.

Cedar Point East Hampton

SEE MAP NO. 52

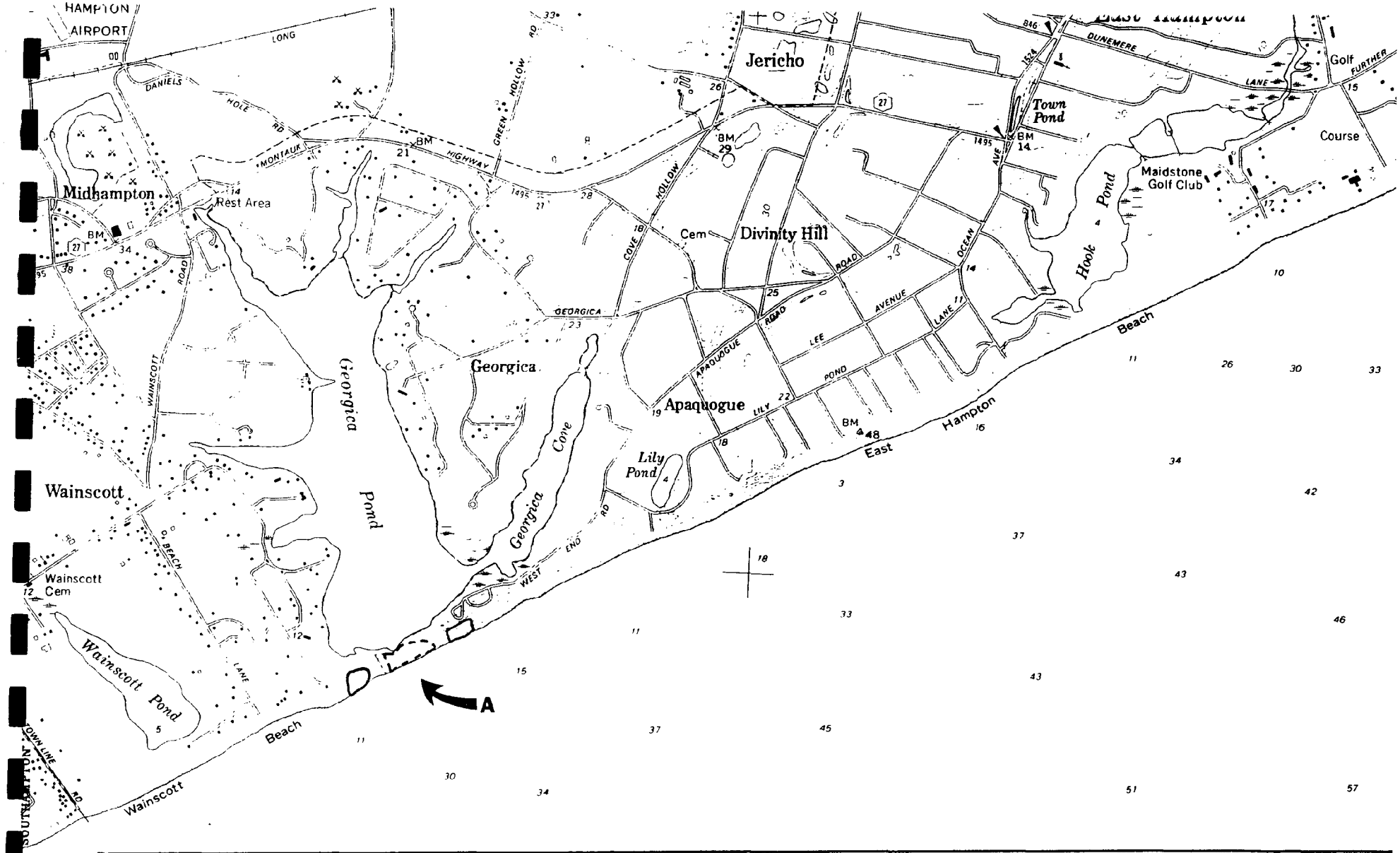
LOCATION:
County, Town, Locality: Suffolk, East Hampton, Grass Hollow.
Map Quad: Greenport, 4107213.
Directions: Long westward pointing peninsula separating Northwest Harbor and Gardiners Bay.
Owner: Suffolk County (Cedar Point County Park).
Significant coastal habitat: Cedar Point Peninsula.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	1	0	0	1	4	1
LT	0	85	29	0	0	0	0	0

Comments: Seatuck name is "Cedar Point County Park."

SITE MANAGEMENT:
Land use history: No known dredging.
Protection: Snow-fenced by Suffolk County Parks. String-fenced, posted and monitored by TNC in 1988. Volunteers also coordinated by TNC.
Positive aspects: Owned and managed by Suffolk County. ORV traffic light, restricted and monitored by county officials. Protection has given large, relatively undisturbed area to the birds.
Threats: Recreation (boat landing and foot traffic), ORV traffic and predation (unknown).
Recommendations: Maintain as part of Cedar Point Peninsula significant coastal habitat. Continue to monitor and protect the colony as birds arrive by fencing the south side of the site. Continue to post "no boat landing" signs along the shore. Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.
Contacts: John Turner, Suffolk Co. Dept. of Parks, Recreation, and Conservation, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767.
Al Brenner, same address as above, Park Supervisor, Cedar Point County Park, (516) 324-2195.

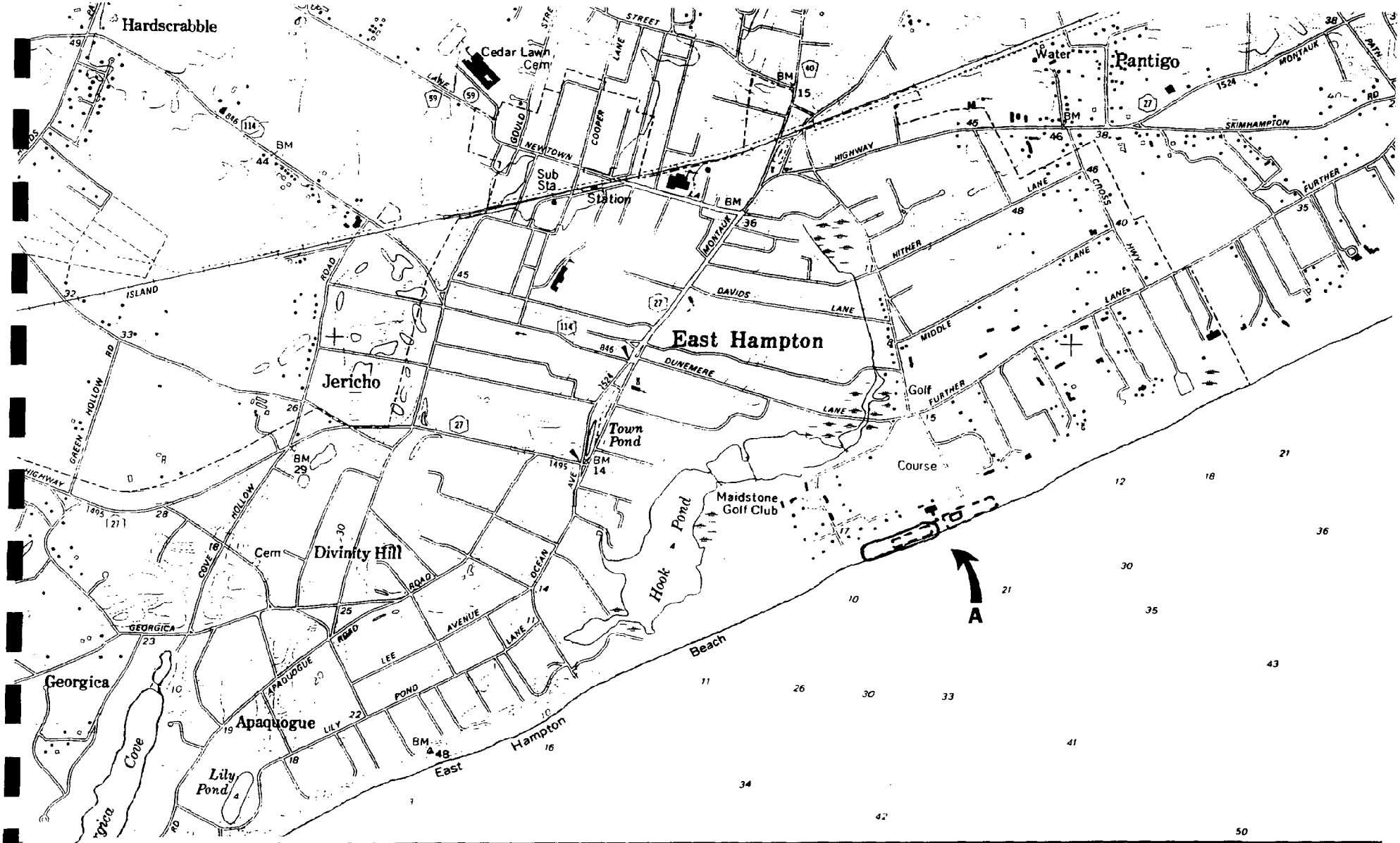


MAP NO. 43 TOWN OF EAST HAMPTON

A: GEORGICA POND

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 **Scale: 1" = 2000'**

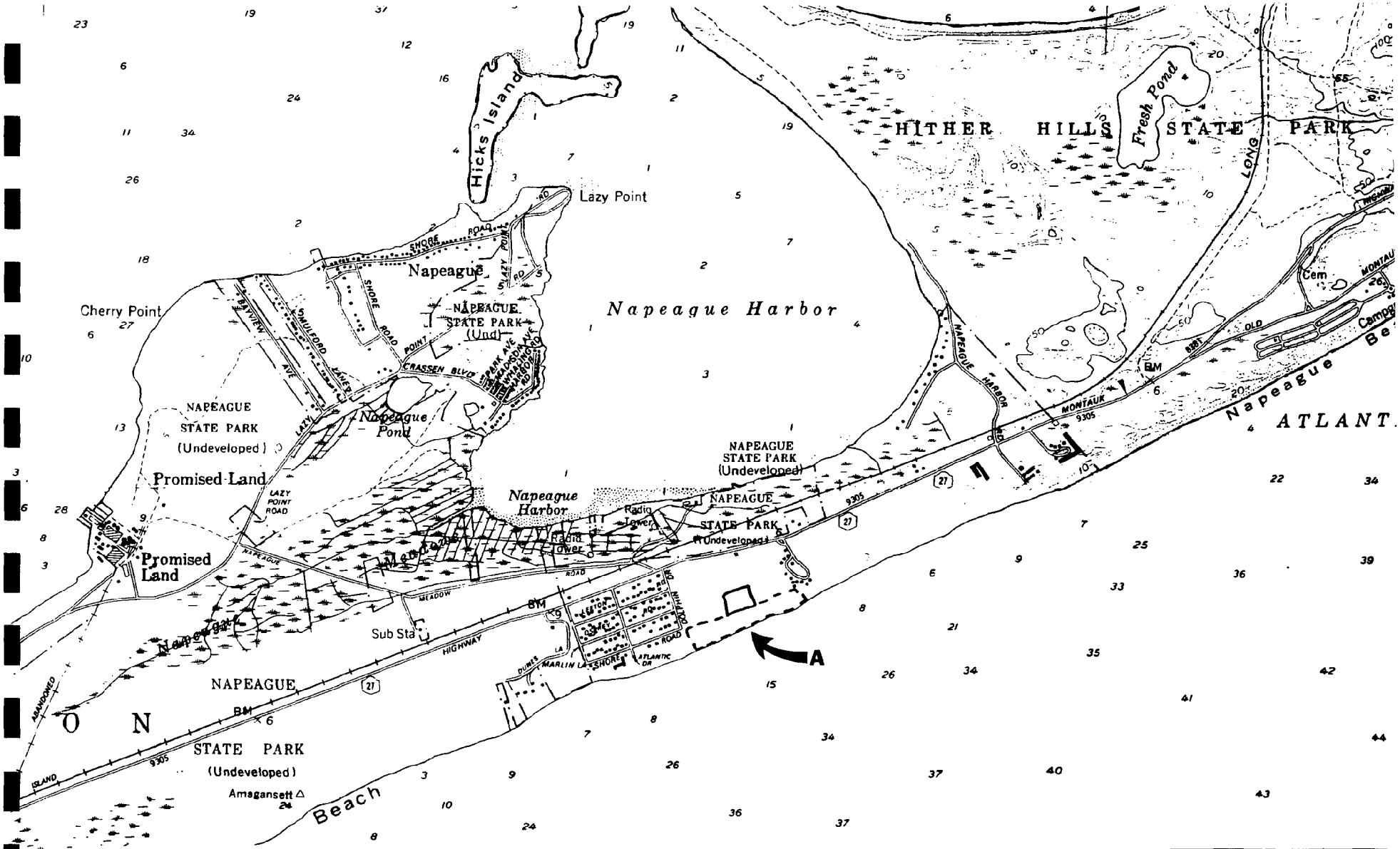


MAP NO. 44 TOWN OF EAST HAMPTON

A: MAIDSTONE BEACH

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization | Prepared by T. Hart and G. Capobianco | March 1991 | Scale: 1" = 2000'

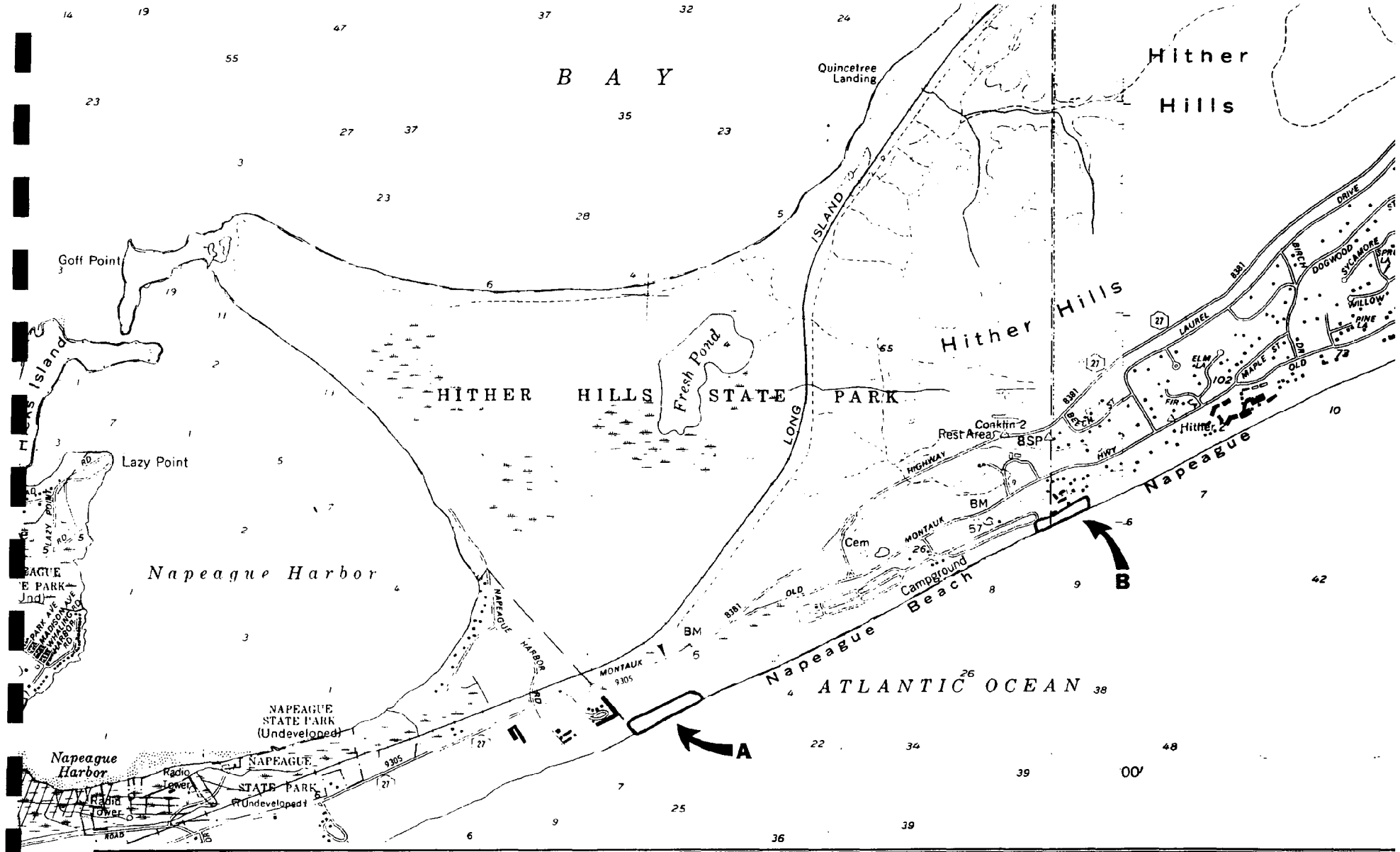


MAP NO. 45 TOWN OF EAST HAMPTON

A: NAPEAGUE BEACH WEST

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

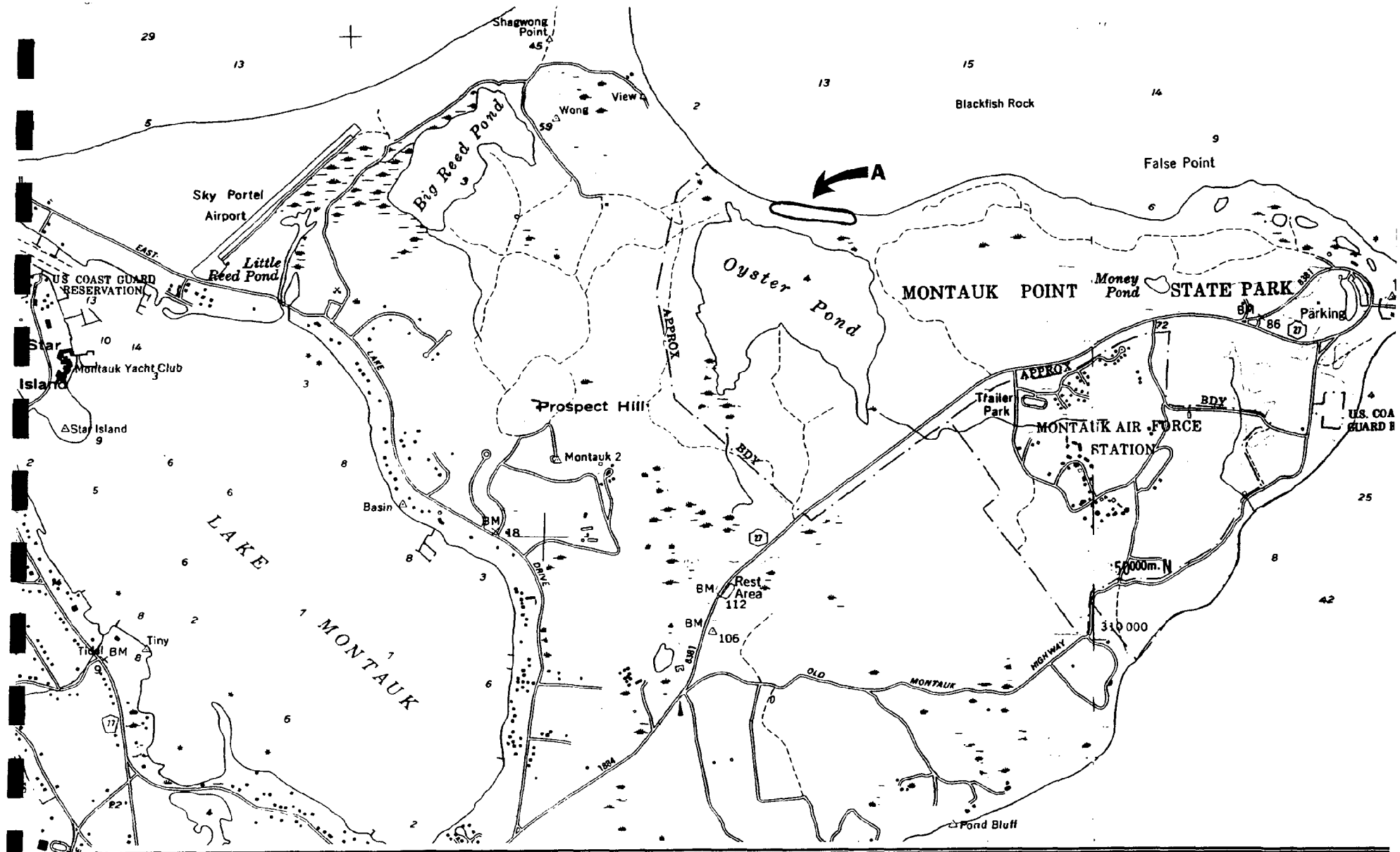


MAP NO. 46 TOWN OF EAST HAMPTON

A: NAPEAGUE BEACH EAST **B: HITHER HILLS EAST**

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

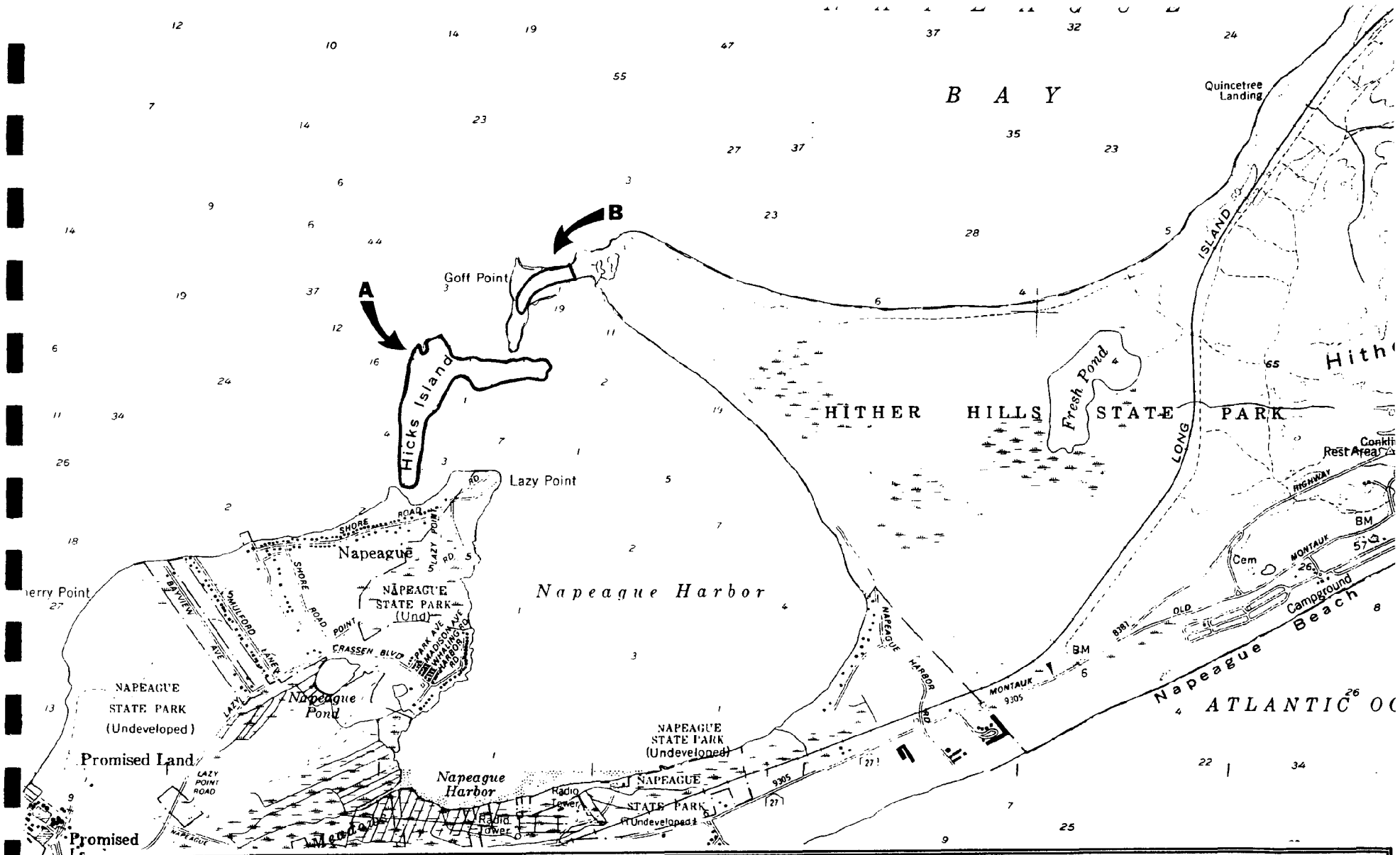


MAP NO. 47 TOWN OF EAST HAMPTON

A: OYSTER POND

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

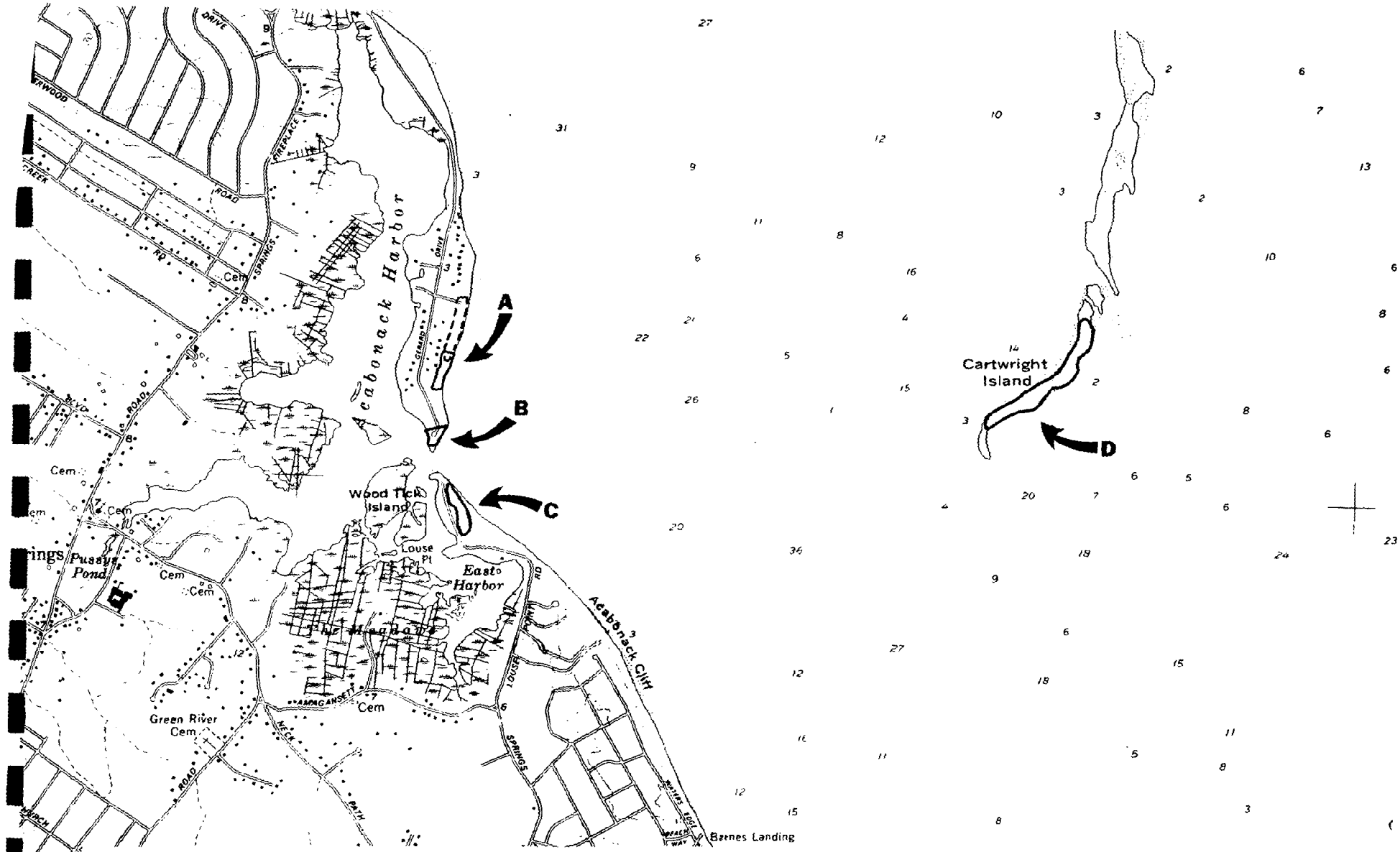


MAP NO. 48 TOWN OF EAST HAMPTON

A: HICKS ISLAND **B: GOFF POINT**

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Map No. 49 Town of East Hampton

A: GERARD PARK

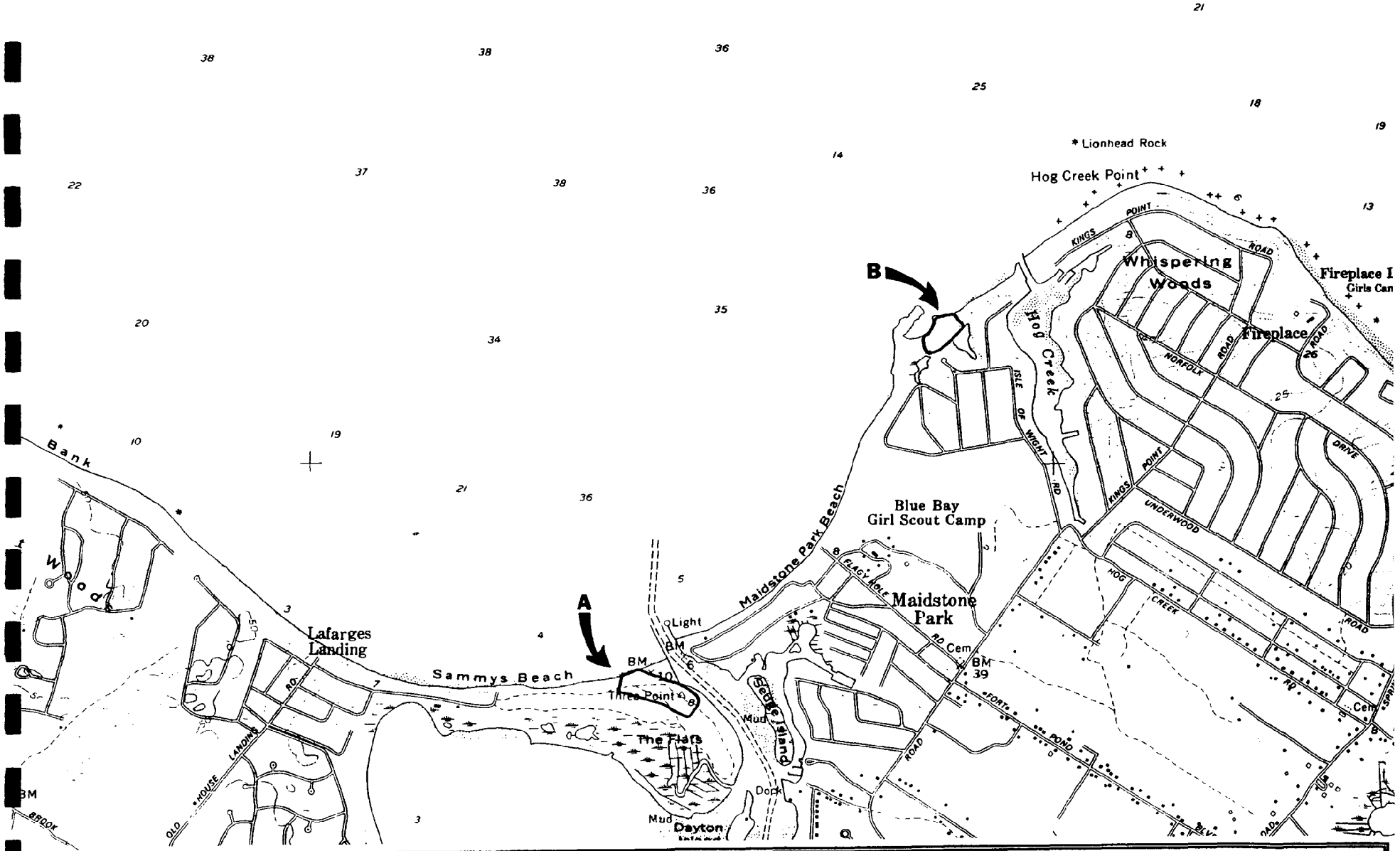
B: GERARD DRIVE

C: LOUSE POINT

D: CARTWRIGHT ISLAND

N

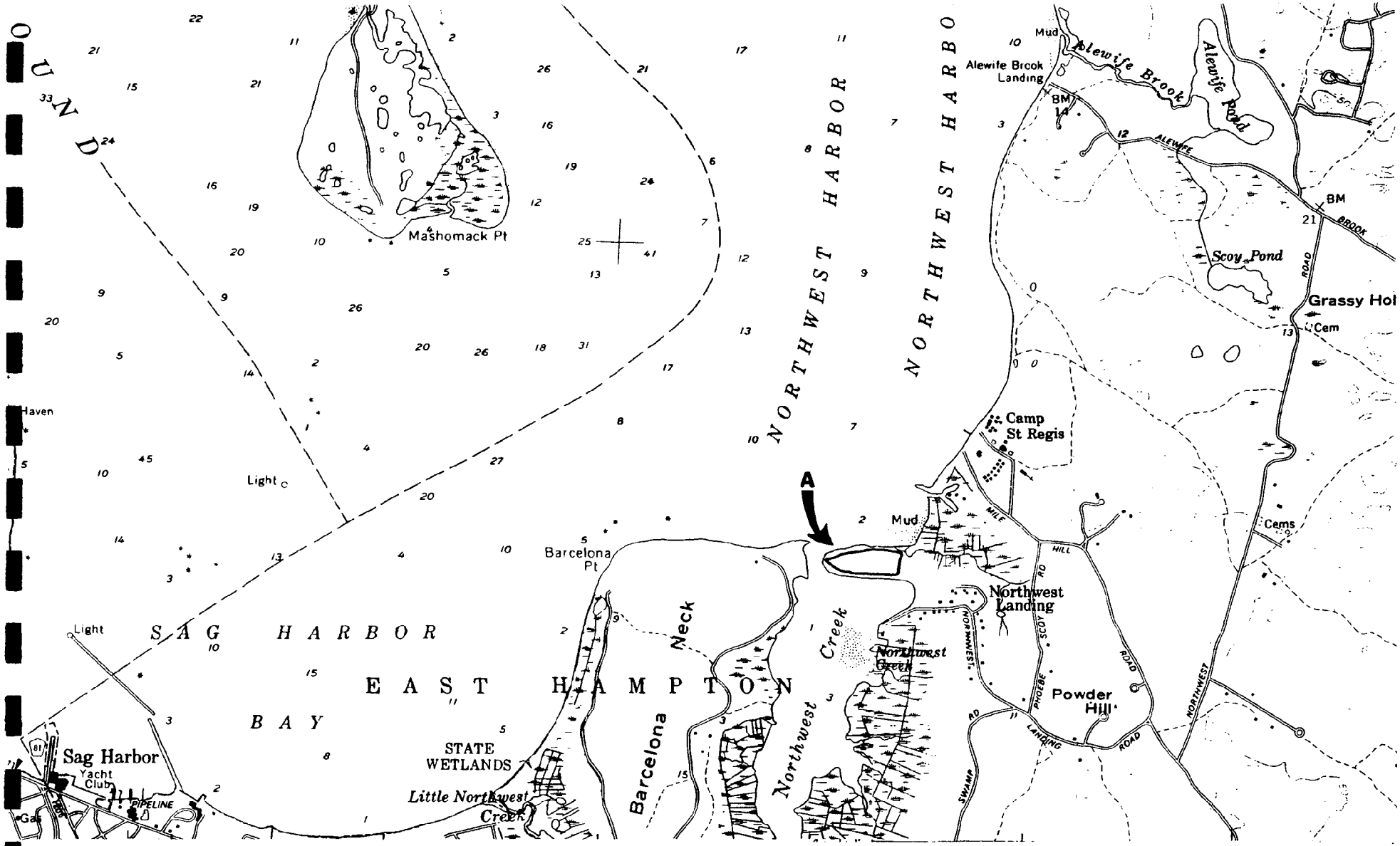
State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Map No. 50 Town of East Hampton

A: SAMMYS BEACH **B: LIONHEAD BEACH**

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

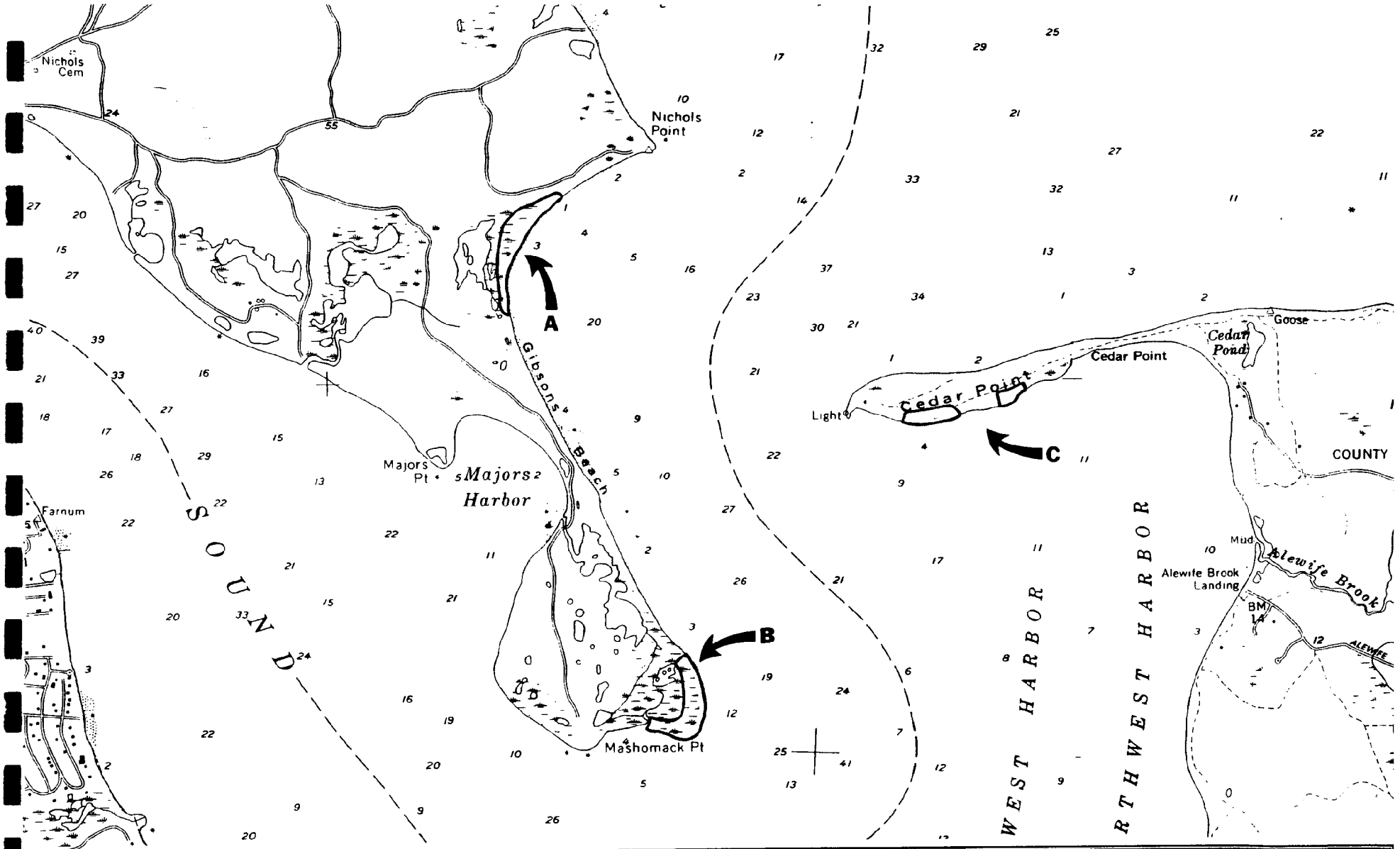


MAP NO. 51 TOWN OF EAST HAMPTON

A: NORTHWEST HARBOR

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



MAP NO. 52 TOWN OF EAST HAMPTON

A: (See Map No. 53)

B: (See Map No. 53)

C: CEDAR POINT EAST HAMPTON

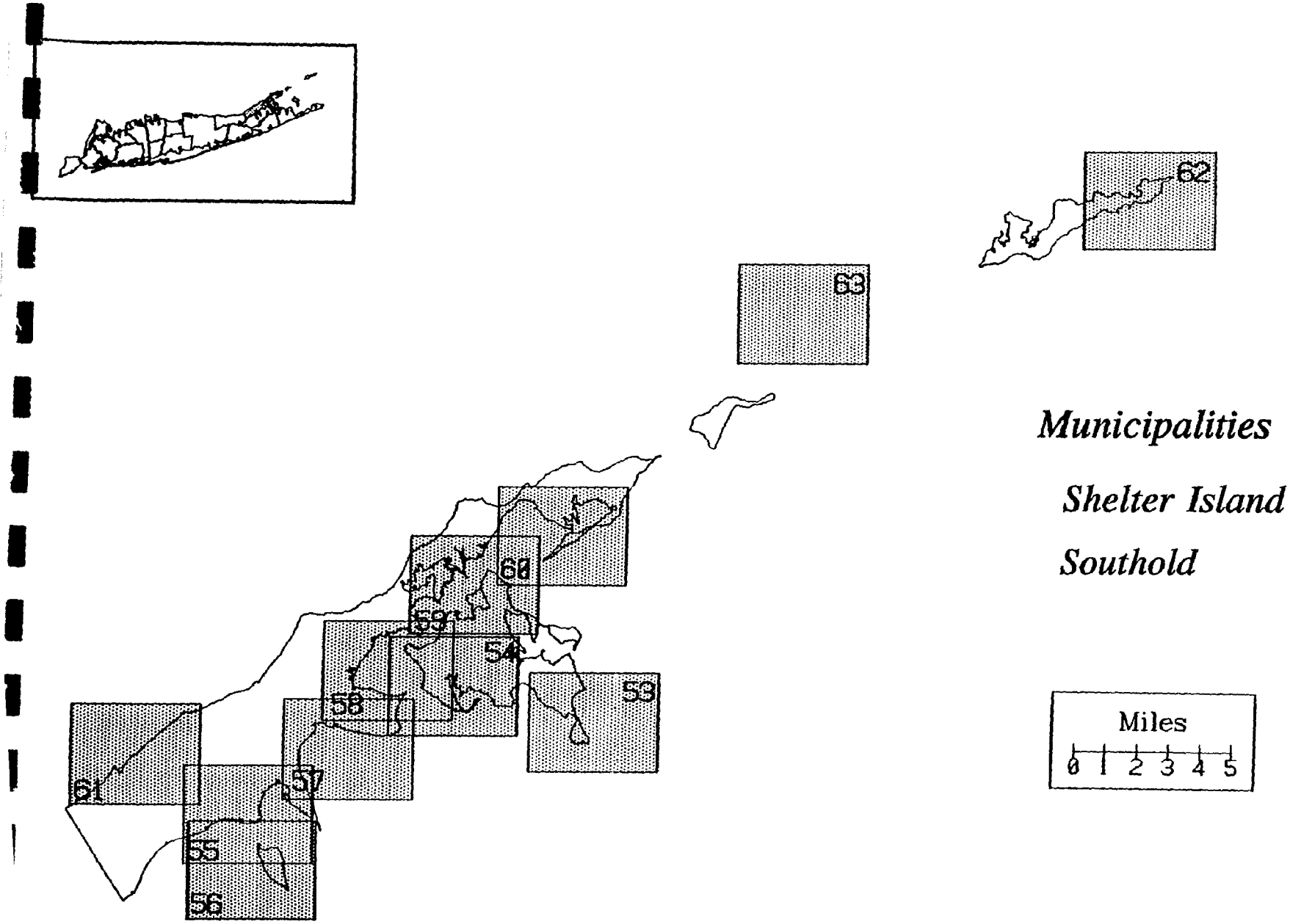
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



Municipalities

Shelter Island

Southold

SHELTER ISLAND

Map No. 53
Mashomack Point 181
Gibsons Beach 182

Map No.
Shell Beach 183
Crab Creek 184

SOUTHOLD

Map No. 55
Marratooka Point 185
Downs Creek 186
Kimogener Point 187
Fleets Neck 188
Meadow Beach 189

Map No. 56
Robins Island 190

Map No. 57
Richmond Creek 191
Hog Neck Bay 192
Corey Creek 193
Cedar Beach Point Southold 194

Map No. 58
Paradise Beach Point 195
Port of Egypt 196
Conkling Point 197
Jockey Creek Spoil 198

Map No. 59
Gull Pond West 199

Map No. 60
Orient Point State Park 200

Map No. 61
Mattituck Inlet 201

Map No. 62
East End Fishers Island 202

Map No. 63
Great Gull Island 203

Mashomack Point

SEE MAP NO. 53

LOCATION:

County, Town, Locality: Suffolk, Shelter Island, Mashomack.

Map Quad: Greenport, 4107213.

Directions: The site is the southernmost land mass on Shelter Island, extending southward towards Sag Harbor with Gardiners Bay to the east and Shelter Island Sound to the west.

Owner: Private (The Nature Conservancy).

Significant coastal habitat: Mashomack Preserve-Shelter Island.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand.

History: The following numbers of adult piping plovers were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	4	4	4
LT	-	-	-	-	-	-	-	4

Comments:

SITE MANAGEMENT:

Land use history: No known dredging. Once part of hunting club, now run as a natural area.

Protection: Area closed off to human traffic during the nesting season.

Positive aspects: Owned and managed by TNC. Relatively low recreational use due to remote location.

Threats: Predation (unknown) and recreation (occasional boatlanding).

Recommendations: Maintain as part of Mashomack Preserve-Shelter Island significant coastal habitat. Continue to monitor and protect pairs of piping plovers if necessary. Implement predator control (if mammalian). Continue to post site with no boat landing signs. Educate visitors about beach-nesting birds.

Contacts: Mike Laspia, The Nature Conservancy, Mashomack Preserve, P.O. Box 850, Shelter Island, NY 11964, (516) 749-1001.

Gibsons Beach

SEE MAP NO. 53

LOCATION:

County, Town, Locality: Suffolk, Shelter Island, Mashomack.
Quad name: Greenport. 4107213.
Directions: Site is located just north of Mashomack Point on the eastern side of that peninsula adjacent to Gardiners Bay on Shelter Island.
Owner: Private (The Nature Conservancy).
Significant coastal habitat: Mashomack Preserve-Shelter Island.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand and cobble.
History: The following numbers of adult least terns were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	-	0	0	0	0	6	0	0

Comments: Least terns were seen here in 1988, at least one fledgling with them, but suspect that these were loafing birds.

SITE MANAGEMENT:

Dredge history: None.
Protection: String-fenced, posted and monitored by TNC in 1987. Monitored in 1988.
Positive aspects: Owned and managed by TNC. ORV use light, restricted to official vehicles.
Threats: Flooding and predation (gulls and raccoons).
Recommendations: Maintain as part of Mashomack Preserve-Shelter Island significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Implement predator control (exclosures).
Contacts: Mike Laspia, The Nature Conservancy, Mashomack Preserve, P.O. Box 850, Shelter Island, NY 11964, (516) 749-1001.

Shell Beach

SEE MAP NO. 54

LOCATION:

County, Town, Locality: Suffolk, Shelter Island, Shelter Island.

Map Quad: Greenport, 4107213.

Directions: Site is a sand spit on the southeastern shore of Shelter Island, bordered to the north by West Neck Harbor and to the south by Shelter Island Sound.

Owner: Town of Shelter Island.

Significant coastal habitat: Shell Beach.

SPECIES USE:

Community type: Maritime sand beach and dune and dredge spoil deposition site.

Nest substrate: Sand and sand/spoil.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	2	3	2	4	2	0
LT	30	12	19	40	132	359	47	35

Comments:

SITE MANAGEMENT:

Land use history: Spoil from the West Neck Harbor project (SI10) was deposited for beach nourishment benefiting two ramps as follows:

	1955	1960	1965	1976	1983
Cubic yards	8000	313000	19400	18800	17400

Protection: String- and snow-fenced, posted and monitored by TNC.

Positive aspects: Management agreement between the Town of Shelter Island and the South Fork/Shelter Island Chapter of The Nature Conservancy. Good predictability of nesting activity between years. Good productivity by both piping plovers and least terns. Relatively low recreation due to remote location when protected from occasional ORV use.

Threats: ORV traffic, predation (unknown), pets (dogs) and recreation (boat landing).

Recommendations: Maintain as part of Shell Beach significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Determine type of predator and implement predator control. Restrict ORV use or limit speeds. Restrict pets and educate owners about beach-nesting birds. Educate the public and area residents about beach-nesting birds.

Contacts: Mike Laspia, The Nature Conservancy, Mashomack Preserve, P.O. Box 850, Shelter Island, NY 11964.

Crab Creek

SEE MAP NO. 54

LOCATION:
County, Town, Locality: Suffolk, Shelter Island.
Map Quad: Greenport, 4147213.
Directions: Site located at the end of Crab Creek Point, a peninsula on the West Neck of Shelter Island.
Owner: Private.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand/cobble.
History: The following numbers of adult birds were estimated in the years indicated.

	1983	1984	1985	1986	1987	1988	1989
PP	0	0	2	0	0	0	3
LT	-	-	-	-	-	-	58

Comments: Both plovers and terns arrived at site in early June; may have moved from another site, maybe Shell Beach? Seatuck name is "Shelter Island, Crab Creek."

SITE MANAGEMENT:
Land use history: No known dredging. Owned and managed by homeowner's association. Northern end of point used for swimming, but little use of southern end of point.
Protection: Area is closed to public and posted by homeowner's association.
Positive aspects: Area is relatively remote from development and not used much by swimmers or ORVs.
Threats: Flooding may be a potential threat.
Recommendations: Monitor use by birds in future seasons. Coordinateprotection and monitoring with homeowner's association. Monitor potential threats from boaters and jet skiers from Crab Creek.
Contacts: Mike Laspia, The Nature Conservancy, Mashomack Preserve, PO Box 850, Shelter Island, NY 11964, (516) 749-1001.

Marratooka Point

SEE MAP NO. 55

LOCATION:

County, Town, Locality: Suffolk, Southhold, Mattituck.

Quad name: Mattituck, 4007285.

Directions: From Route 25 in Mattituck, go east on New Suffolk Rd. 1 mile to Marratooka Rd. Take second right, onto Bungalo Lane, follow to dead end (southeast). Site is east of road end, at mouth of Deep Hole Creek.

Owners: Private.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune, and dredge spoil deposition site.

Nest substrate: Sand/pebble and sand/spoil.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	1	0	0	2	2
LT	4	0	0	0	0	0	7	11

Comments:

SITE MANAGEMENT:

Dredge history: Dredge spoil from the Deep Hole Creek project (S6) was deposited for beach nourishment on both sides of the inlet at Maratooka Pt.

	1964	1972	1975	1976	1980	1982	1983	1987
Cubic yards	243500	21100	4000	14000	15000	8800	6300	7000

Protection: String-fenced, posted and monitored by TNC. Volunteers coordinated by TNC.

Positive aspects: Landowners cooperated with protection efforts. Recreational use limited to residents. Proper deposition of dredge spoil has enhanced habitat for piping plovers and least terns by reducing flooding at this site.

Threats: Predation (gulls) and recreation.

Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Implement predator control. Educate the public and area residents about beach-nesting birds.

Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

Downs Creek

SEE MAP NO. 55

LOCATION:
County, Town, Locality: Suffolk, Southold, Cutchogue.
Quad name: Southampton, 4007284.
Directions: Beaches at the mouth of Downs Creek.
Owner: Private.
Significant coastal habitat: Downs Creek.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate:
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	4	0	0

Comments: Seatuck lists this site and Kimogener Point as subcolonies at "New Suffolk, Cutchogue."

SITE MANAGEMENT:
Dredge history: None.
Protection: Monitored by TNC.
Positive aspects: Relatively low recreational use due to remote location. Pristine habitat is easily protected with no ORV intrusions.
Threats: Recreation, development and predation (gulls), pets.
Recommendations: Maintain as part of Downs Creek significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict or mitigate development. Implement predator control (exclosures). Restrict ORV use. Restrict pets and educate owners about beach-nesting birds.
Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11935, (516) 734-6605.

Kimogener Point

SEE MAP NO. 55

LOCATION:
County, Town, Locality: Suffolk, Southold, New Suffolk.
Quad name: Southampton, 4007284.
Directions: Take New Suffolk Ave. east from Route 25 in New Suffolk. Go east just over 3 miles, turn left on Kimogener Point Rd., follow to end. Site is located on peninsula west of road end, at mouth of West Creek.
Owner: Private.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Maritime sand beach and dune, dredge spoil deposition site.
Nest substrate: Sand/pebble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	4	2	1
LT	?	0	0	0	0	23	59	0

Comments: In 1988, least tern colony was abandoned due to flooding. Seatuck lists this site and Downs Creek as subcolonies at "New Suffolk, Cutchogue."

SITE MANAGEMENT:
Dredge history: The West Creek dredging project (S26) cleared a boat ramp (6 cars). Spoil was deposited on both sides of West Creek inlet for beach nourishment in the following quantities, not all on nesting areas.

	1966	1976	1982
Cubic yards	92500	9000	2800

Protection: Owners did not allow fencing of site. Posted and monitored by TNC. Individual nests marked to make more visible to walkers in absence of fencing.
Positive aspects: Access restricted to residents. ORV use restricted.
Threats: Flooding, recreation, narrow beach and pets.
Recommendations: Designate as significant coastal habitat. Continue to monitor and post the colony as birds arrive. Obtain permission to string-fence the colony and nest sites. Restrict pets and educate owners about beach-nesting birds. Educate area residents about beach-nesting birds.
Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11951, (516) 734-6605.

Fleets Neck

SEE MAP NO. 55

LOCATION:

County, Town, Locality: Suffolk, Southold, East Cutchogue.

Quad name: Southold, 4107214.

Directions: beach south of the end of Fleetwood Road in East Cutchogue, on the northwest side of Cutchogue Harbor. From the North Ferry in Greenport, take [illegible]25 west 9.4 miles to Pequash Ave., turn left onto Pequash Ave. and proceed 0.9 miles to a fork in the road. Bear left onto Fleetwood Rd, follow Fleetwood to end.

Owner: Private.

Significant coastal habitat: Cutchogue Harbor and Wetlands.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: N/A.

History: The following numbers of adult piping plovers were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	1	0	0	1	0

Comments: Recreational use from area residents reduces potential for successful nesting.

SITE MANAGEMENT:

Dredge history: None.

Protection: Monitored by TNC.

Positive aspects:

Threats: Recreation, ORV traffic and pets.

Recommendations: Maintain as part of Cutchogue Harbor and Wetlands significant coastal habitat. Continue to monitor and protect nest sites if birds arrive. Restrict ORV use or limit speeds. Restrict pets and educate owners about beach-nesting birds. Educate the public, area residents and ORV users about beach-nesting birds.

Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

Meadow Beach

SEE MAP NO. 55

LOCATION:

County, Town, Locality: Suffolk, Southold, Nassau Point.

Quad name: Southold, 4107214.

Directions: From Route 25 in East Cutchogue, take Skunk Lane south 1 mile to Bay Ave. Go 1/2 mile east on Bay Ave. to Nassau Point Rd. Follow Nassau Point Rd. to end. Site is on beach west of road end.

Owner: Private (The Nature Conservancy).

Significant coastal habitat: Cutchogue Harbor and Wetlands.

SPECIES USE:

Community type: Maritime sand beach and dune, salt marsh.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	4	3	3	2	2	2	1
LT	60	25	18	45	21	17	27	16

Comments: Both species abandoned nest site in 1988 due to flooding.

SITE MANAGEMENT:

Dredge history: None.

Protection: String-fenced, posted and monitored by TNC.

Positive aspects: Owned and managed by TNC. Relatively low human disturbance due to protected status.

Threats: Flooding and recreation (boaters).

Recommendations: Maintain as part of Cutchogue Inlet and Wetlands significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Implement predator control (exclosures). Restrict boat-landing (signs). Educate the public about beach-nesting birds.

Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

Robins Island

SEE MAP NO. 56

LOCATION:
County, Town, Locality: Suffolk, Southold, Robins Island.
Quad name: [illegible] 4007284.
Directions: Island in Great [illegible]nic Bay, north of Southampton.
Owner: Private.
Significant coastal habitat: Robins Island.

SPECIES USE:
Community type: Maritime sand beach and dune.
Nest substrate: Sand/cobble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	2	2	0	0	0
LT	0	0	0	0	7	0	0	0

Comments: TNC and Suffolk County are attempting purchase. Exact location on island where nesting occurred is unknown.

SITE MANAGEMENT:
Dredge history: None.
Protection: None.
Positive aspects: Privately owned island. Access only by private boat, with permission of owners. Limited ORV use.
Threats: Development, recreation (boaters), ORV traffic (caretaker patrols beach).
Recommendations: Maintain as Robins Island significant coastal habitat. Obtain permission to monitor and protect nesting areas as needed. Restrict development. Restrict ORV use or limit speeds. Educate ORV users about beach-nesting birds.
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, SUNY Stony Brook, Bldg. #40, Stony Brook, NY 11790, (516) 751-7900.

Richmond Creek

SEE MAP NO. 57

LOCATION:
County, Town, Locality: Suffolk, Southold, Peconic.
Quad name: Southold, 4107214.
Directions: From Route 25, approx. 1 1/2 miles norhteast of East Cutchogue, take Indian Neck Lane. Follow to end. Site is northeast of road end, on beach towards mouth of Richmond Creek.
Owner: Private.
Significant coastal habitat: Richmond Creek and Beach.

SPECIES USE:
Community type: Maritime sand beach and dune, dredge spoil deposition site.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	0	0	5	2	1	2
LT	20	0	0	0	55	19	42	58
CT	-	-	0	0	0	0	2	0

Comments:

SITE MANAGEMENT:
Dredge history: The Richmond Creek dredging project (S22) deposited spoil as beach nourishment and boat ramp. Dredge spoil was deposited in the following quantities, on both sides of the inlet, on nesting areas and loafing areas.

	1959	1964	1967	1972	1983
Cubic yards	123000	82800	25100	5500	15300

Protection: String-fenced, posted and monitored by TNC. Volunteers coordinated by TNC.
Positive aspects: Inaccessible to ORVs.
Threats: Recreation (boaters, swimmers from public beach, across inlet) ORV traffic (ATVs), pets and predation (gulls, crows).
Recommendations: Maintain as part of Richmond Creek and Beach significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORVs or limit speeds. Restrict pets and educate owners about beach-nesting birds. Implement predator control (exclosures). Educate the public and area residents about beach-nesting birds.
Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

Hog Neck Bay

SEE MAP NO. 57

LOCATION:

County, Town, Locality: Suffolk, Southold, Laughing Waters.

Quad name: Southold, 4107214.

Directions: From Southold, take Route 25 west to South Harbor Rd., go south 1/2 mile to Hiawatha's Path, go east and south to road end, turn east onto Minnehaha Blvd., go approx. 1/8 mile to Wigwam Way, follow west and south to end. Located approx. 25 yards north of domed house at road end.

Owner: Private.

Significant coastal habitat: West of and adjacent to Corey Creek significant coastal habitat.

SPECIES USE:

Community type: Maritime sand beach and dune, dredge spoil deposition site.

Nest substrate: Sand.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	0	0	2	?

Comments: Piping plovers first seen nesting at this site in 1988, but nest was destroyed by crow predation. Site is also loafing area for least terns from Corey Creek.

SITE MANAGEMENT:

Dredge history: The Corey Creek dredging project (S4) benefits a 6 car boat ramp. Dredge spoil from this project was deposited in the following quantities have been deposited on upland sites and for beach nourishment at Hog Neck Bay, Corey Creek, and/or other locations.

	1963/4	1967	1972	1981	1983	1984
Cubic yards	345600	23900	7600	10200	800	3500

Protection: Monitored by TNC.

Positive aspects: Not open to the public.

Threats: Predation (crows), beach erosion, advancing vegetational succession, recreation and pets (dogs).

Recommendations: Continue to monitor and protect the nesting area as birds arrive. Implement predator control (exclosure). Enhance site with proper deposition of dredge spoil. Manage vegetation for optimal piping plover nesting. Restrict pets and educate owners about beach-nesting birds. Educate the public and area residents about beach-nesting birds.

Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11935, (516) 734-6605.

Corey Creek

SEE MAP NO. 57

LOCATION:

County, Town, Locality: Suffolk, Southold, Peconic.

Quad name: Southold, 4107214.

Directions: Southeastern arm of sand spit enclosing Corey Creek inlet, at southwestern corner of Great Hog Neck peninsula, southeast across mouth of Corey Creek from village of Laughing Waters.

Owners: Private.

Significant coastal habitat: Corey Creek.

SPECIES USE:

Community type: Maritime sand beach and dune, dredge spoil deposition site.

Nest substrate: Sand/pebble.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	2	0	2	0	0	2
LT	0	0	18	0	0	0	0	0

Comments: Habitat appears good, reasons for lack of nesting unknown.

SITE MANAGEMENT:

Dredge history: Dredging from the Corey Creek project (S4) benefited boat ramp (6 cars). Dredge spoil was deposited in the following quantities at an upland site and for beach nourishment at Corey Creek, Hog Neck Bay and/or other locations.

	1963/4	1967	1972	1981	1983	1984
Cubic yards	345600	23900	7600	10200	800	3500

Protection: Monitored by TNC.

Positive aspects: Good habitat, relatively low recreational use.

Threats: Advancing vegetational succession, ORV traffic, recreation and flooding.

Recommendations: Maintain as Corey Creek significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Manage vegetation for optimal piping plover and least tern nesting. Restrict ORV use or limit speeds. Educate the public, area residents and ORV users about beach-nesting birds.

Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11935, (516) 734-6605.

Cedar Beach Point Southold

SEE MAP NO. 57

LOCATION:

County, Town, Locality: Suffolk, Southold, Cedar Beach.

Quad name: Southold, 4107214.

Directions: Located in the village of Cedar Beach, the southeastern arm extending around the inlet at the southeast corner of Great Hog Neck Peninsula. Accessed via the east end of Cedar Beach Rd.

Owner: Suffolk County (Suffolk County Community College).

Significant coastal habitat: Cedar Beach Point.

SPECIES USE:

Community type: Maritime sand beach and dune, dredge spoil deposition site.

Nest substrate: Sand/cobble/pebble.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	2	3	0	0	1	0
LT	80	95	10	9	0	0	13	11

Comments: Seatuck name is "Cedar Beach Point."

SITE MANAGEMENT:

Dredge history: Dredging from the Cedar Beach (S.C. Community College) project (S3) benefits Suffolk Co. Community College Marine Technology Department. The following quantities of dredge spoil were deposited for beach nourishment.

	1979	1980	1981	1982	1983	1984	1985	1986	1987
Cubic yards	12400	1900	9700	1700	1700	1900	1440	2880	1920

Protection: String-fenced, posted and monitored by TNC. Volunteers coordinated by TNC.

Positive aspects: Owned and managed by Suffolk County as parkland. Geography makes site easy to protect.

Threats: ORV traffic, advancing vegetational succession and predation (unknown).

Recommendations: Maintain as Cedar Beach Point significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use (extend existing guardrail). Manage vegetation for optimal least tern and piping plover nesting. Determine type of predator and implement predator control.

Contacts: John Turner, Suffolk Co. Dept. of Parks, Recreation, and Conservation, P.O. Box 144, West Sayville, NY 11796, (516) 924-6767.

Paradise Beach Point

SEE MAP NO. 58

LOCATION:

County, Town, Locality: Suffolk, Southold, Bayview.

Quad name: Southold, 4107214.

Directions: From Route 25 in Southold, take Pine Neck Rd. east to North Rd., which turns into North Bayview Rd. Follow N. Bayview south and east to Paradise Point Rd. Go northeast to Robinson Rd. Follow Robinson Rd. to end at Southold Yacht Club. Site is on beach to northeast. The northeast "corner" of Great Hog Neck peninsula.

Owner: Private.

Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand/cobble.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	2	2	0	0	0	0	0
LT	90	2	0	0	0	0	0	0

Comments: Poor habitat for piping plovers and least terns.

SITE MANAGEMENT:

Dredge history: None.

Protection: Monitored by TNC.

Positive aspects: Privately owned. No ORV use.

Threats: Recreation (heavily used as a bathing beach).

Recommendations: Consider designation as significant coastal habitat. Continue to monitor and protect the colony if birds arrive. Educate area residents about beach-nesting birds.

Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

Port of Egypt

SEE MAP NO. 58

LOCATION:

County, Town, Locality: Suffolk, Southold, Greenport.
Quad name: Southold, 4107214.
Directions: From Greenport Ferry terminal follow Route 25 west 3.2 miles to marina. Colony is on island and accessible only by boat.
Owner: Private.
Significant coastal habitat: Port of Egypt Island.

SPECIES USE:

Community type: Maritime sand beach and dune, dredge spoil deposition site.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	2	2	2	2	2
LT	-	0	0	0	0	0	7	80
BS	-	-	40	24	0	13	2	4
CT	-	-	1000	524	175	185	122	200

Comments: Black skimmer numbers are estimates. Seatuck name is "Southold, Port of Egypt."

SITE MANAGEMENT:

Dredge history: Dredging from the Mill Creek project (S18) benefits 3 marinas with a total of 361 slips. The following quantities of dredge spoil were deposited on this site.

	1963	1968	1975	1979	1981
Cubic yards	66300	2700	6000	4000	4500

Protection: Posted and monitored by TNC.
Positive aspects: Island colony, accessible only by private boat. Owner cooperates with protection efforts. Relatively low recreational use, due to remote location.
Threats: Recreation (boaters), predation (gulls), advancing vegetational succession.
Recommendations: Manage channel boat traffic. Maintain as Port of Egypt significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Implement predator control (exclosures?). Manage vegetation for optimal piping plover and least tern nesting. Enhance site by proper deposition of dredge spoil to set back vegetational succession. Educate the public about beach-nesting birds.
Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605. Tim Grey, Tin Masonry, Main Southold, NY 11971, (516) 765-1417.

Conkling Point

SEE MAP NO. 58

LOCATION:

County, Town, Locality: Suffolk, Southold, Greenport.

Quad name: Southold, 4107214.

Directions: From Greenport Ferry Terminal, follow signs to Route 25, go west on 25 for 1.9 miles to Kerwin Rd. on left, take Kerwin Rd. to Bayshore Rd., take right onto Bayshore, follow to end. Walk from road end to end of point (with permission of residents).

Owner: Private.

Significant coastal habitat: Conkling Point.

SPECIES USE:

Community type: Maritime sand beach and dune.

Nest substrate: Sand/pebble.

History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	6	5	3	2	2	2	2
LT	-	45	105	50	0	23	47	45

Comments: Colony abandoned in 1988 because of flooding, possibly also pets and recreation.

SITE MANAGEMENT:

Dredge history: None.

Protection: Private owner will not allow posting of LICWA signs (1988) but may post his own signs in future seasons. TNC posted interpretive sign in 1988, monitored.

Positive aspects: Geography of site makes it easily protected if fencing and posting was allowed.

Threats: Flooding, recreation (hikers, boaters), pets (dogs, cats), predation (gulls, possibly mink) and development.

Recommendations: Maintain as Conkling Point significant coastal habitat. Obtain permission to monitor and protect the colony as birds arrive. Restrict pets and educate owners about beach-nesting birds. Restrict or mitigate development. Educate the public and area residents about beach-nesting birds.

Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

Jockey Creek Spoil

SEE MAP NO. 58

LOCATION:
County, Town, Locality: Suffolk, Southold, Southold Bay.
Quad name: Southold, 4107214.
Directions: Located at the mouth of Jockey Creek, just north of Great Hog Neck on Shelter Island Sound.
Owner: Private.
Significant coastal habitat: Jockey Creek Spoil Area.

SPECIES USE:
Community type: Dredge spoil deposition site.
Nest substrate: Sand/spoil.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	6	1	4	0	0	0	0
LT	0	7	23	14	0	0	0	0
CT	-	-	0	0	0	0	0	2

Comments:

SITE MANAGEMENT:
Dredge history: Dredging from the Jockey Creek project (S14) benefits marina with 60 slips. The following quantities of dredge spoil were deposited on the site.

	1959a	1959b	1976
Cubic yards	23200	93400	9000

Protection: Unknown
Positive aspects: Unknown
Threats: Unknown
Recommendations: Maintain as part of Jockey Creek Spoil Area significant coastal habitat.
Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

Gull Pond West

SEE MAP NO. 59

LOCATION:
County, Town, Locality: Suffolk, Southold, Greenport.
Quad name: Greenport, 4107213.
Directions: From Main St. (Route 25) in Greenport, go south on Manhasset Ave. to end. Site is located on beach, directly west of road end.
Owner: Town of Southold.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Maritime sand beach, dredge spoil deposition site, mainland.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	6	1	2	2	0	0
LT	0	0	6	3	4	0	0	0

Comments:

SITE MANAGEMENT:
Dredge history: The Gull Pond dredging project (S11) benefits large docking facility at Manhasset Ave. Park. Dredge spoil was deposited in the following quantities west of Gull Pond for beach nourishment.

	1959	1960	1970	1979	1983
Cubic yards	177200	28500	29000	23300	1000

Protection: String-fenced, posted and monitored by TNC. Guard rail erected to keep out ORVs (not sufficient).
Positive aspects: Vehicles can be restricted.
Threats: ORV traffic and recreation.
Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Educate the public, area residents and ORV users about beach-nesting birds.
Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

Orient Point State Park

SEE MAP NO. 60

LOCATION:

County, Town, Locality: Suffolk, Southold, Greenport.
Map Quad: Orient and Greenport, 4107223 and 4107213, respectively.
Directions: At Orient Beach State Park, about 1/2 mile east of road end (turnaround at bathhouse) on south beach.
Owner: NYS Office of Parks, Recreation, and Historic Preservation (Orient Point State Park).
Significant coastal habitat: Not designated.

SPECIES USE:

Community type: Maritime sand beach and dune.
Nest substrate: Sand.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	0	0	4	2	17	21
LT	0	0	0	0	0	8	35	28

Comments:

SITE MANAGEMENT:

Land use history: No known dredging.
Protection: String- and snow-fenced, posted and monitored by TNC. Volunteers coordinated by TNC.
Positive aspects: Owned and managed by NYS. Pets restricted. Nesting areas are remote from most recreational use. ORVs limited to official vehicles.
Threats: Predation (gulls, crows, foxes, racoons), recreation (hikers) and ORV traffic.
Recommendations: Designate as significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Implement predator control (exclosures). Restrict ORV use or limit speeds. Educate the public and ORV users about beach-nesting birds.
Contacts: Mr. Raymond Dobbins, Park Manager, Orient Point State Park, P.O. Box 117, Main Rd., Orient, NY 11957, (516) 323-2440.

Mattituck Inlet

SEE MAP NO. 61

LOCATION:

County, Town, Locality: Suffolk, Southold, Mattituck.
Map Quad: Mattituck Hills, 4107215.
Directions: From Route 84 in Mattituck (West Mill Rd.), go south on Reeve Ave., take second left onto Builie Beach Rd., follow north to end. Site is west of road end at mouth of Mattituck Creek.
Owner: Village of Mattituck.
Significant coastal habitat: Mattituck Inlet Wetlands.

SPECIES USE:

Community type: Maritime sand beach and dune, dredge spoil deposition site.
Nest substrate: Sand/cobble/pebble.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
PP	-	0	2	0	0	0	0	0

Comments: Site is very disturbed due to ORV use.

SITE MANAGEMENT:

Land use history: The Mattituck Creek dredging project (S17) benefited 3 marinas and park district boat slips and ramp, with a total of 197 slips. Dredge spoil was taken from creek in the following quantities; site of deposition is uncertain.

Approximately 1596400 cubic yards dredged in 1955.

Protection: Monitored by TNC. Volunteers coordinated by TNC. ORV access blocked by guard rail (later vandalized and removed).
Positive aspects: Owned and managed as a village park by Mattituck Village.
Threats: ORV traffic and recreation.
Recommendations: Maintain as part of Mattituck Inlet Wetlands significant coastal habitat. Continue to monitor and protect the colony as birds arrive. Restrict ORV use or limit speeds. Educate the public, area residents and ORV users about beach-nesting birds.
Contacts: Paul Stoutenburgh, Skunk Lane, Cutchogue, NY 11952, (516) 734-6605.

East End Fishers Island

SEE MAP NO. 62

LOCATION:
County, Town, Locality: Suffolk, Southold, Fishers Island.
Map Quad: Mystic, Conn.-NY-RI, 4107138.
Directions: Approximately 15 miles east of Orient Point, LI.
Owner: Private.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Shoreline/ocean estuary.
Nest substrate: Grass/sedge/rush/herb.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
LT	0	0	0	26	18	0	0	0

Comments: The site has been flooded for three consecutive years since 1985.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted.
Positive aspects:
Threats: Flooding is a serious current threat; predation, recreation, ORVs, and pets are potential threats.
Recommendations:
Contacts: Mike Scheibel, NYS Department of Environmental Conservation, SUNY Stony Brook, Bldg. #40, SUNY, Stony Brook, NY 11790, (516) 751-7900.

Great Gull Island

SEE MAP NO. 63

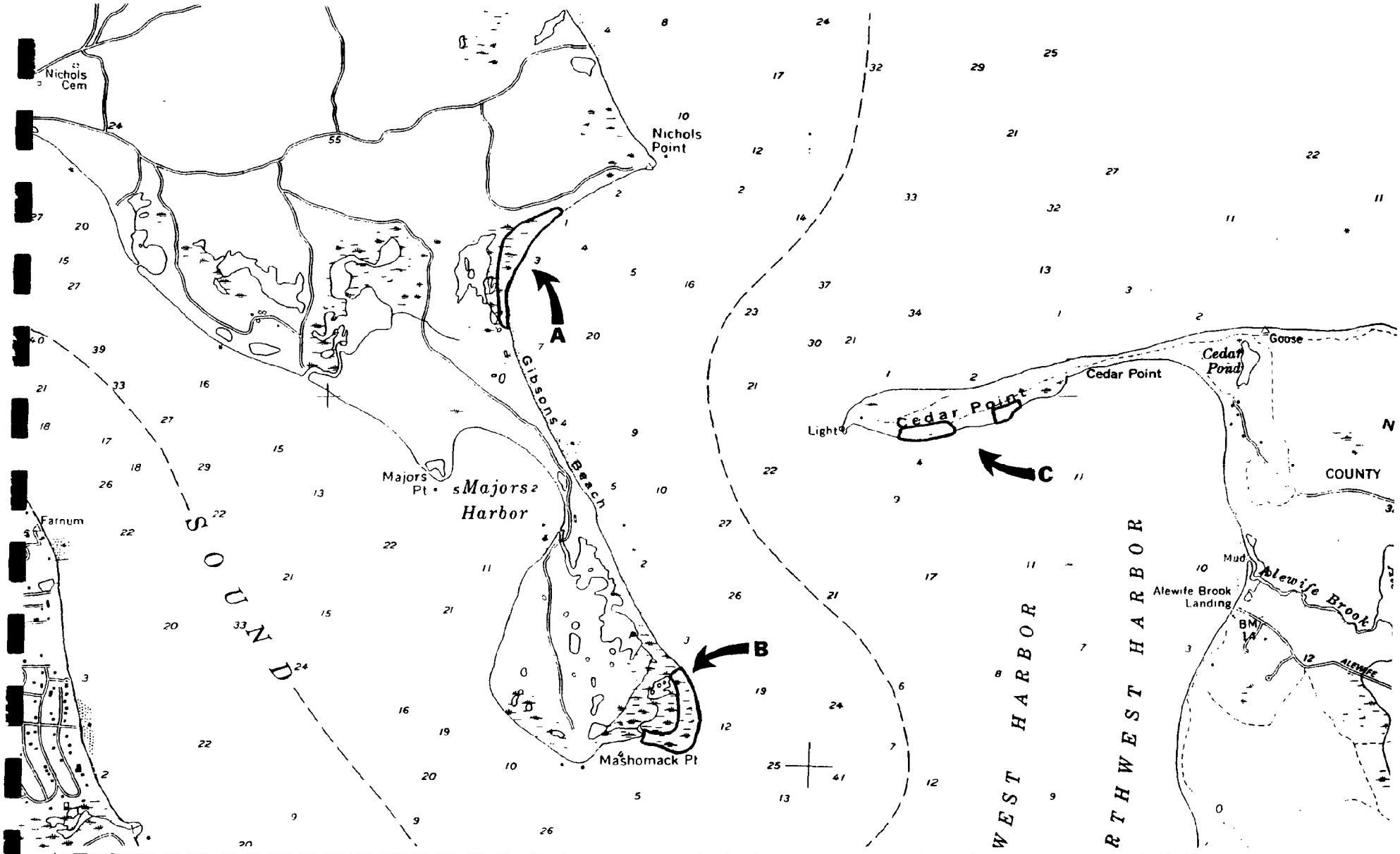
LOCATION:
County, Town, Locality: Suffolk, Southold.
Map Quad: Plum Island, 4107222.
Directions: About 10 miles east of Orient Point, LI.
Owner: Private.
Significant coastal habitat: Not designated.

SPECIES USE:
Community type: Saltwater, non-barrier island.
Nest substrate: Grass/sedge/rush/herb-rocks/crevices.
History: The following numbers of adult birds for each species were estimated in the years indicated.

	1982	1983	1984	1985	1986	1987	1988	1989
CT	-	-	10000	10000	11000	12000	12000	12000
RT	-	-	1400	1400	1500	1500	2400	2400

Comments: Two subcolonies: Great Gull and Little Gull Islands.

SITE MANAGEMENT:
Land use history: Unknown.
Protection: Posted and patrolled.
Positive aspects: Researchers from Great Gull Island Project of the American Museum of Natural History live on Great Gull Island and study the colony throughout the breeding season. The island supports the second largest common tern colony in NYS, and the second largest roseate tern colony in North America.
Threats: Unknown.
Recommendations: Designate as a Significant Coastal Fish and Wildlife habitat.
Contacts: Helen Hays and staff of Great Gull Island project, American Museum of Natural History, 79th and Central Park West, NY, NY 10024, (212) 873-4225.

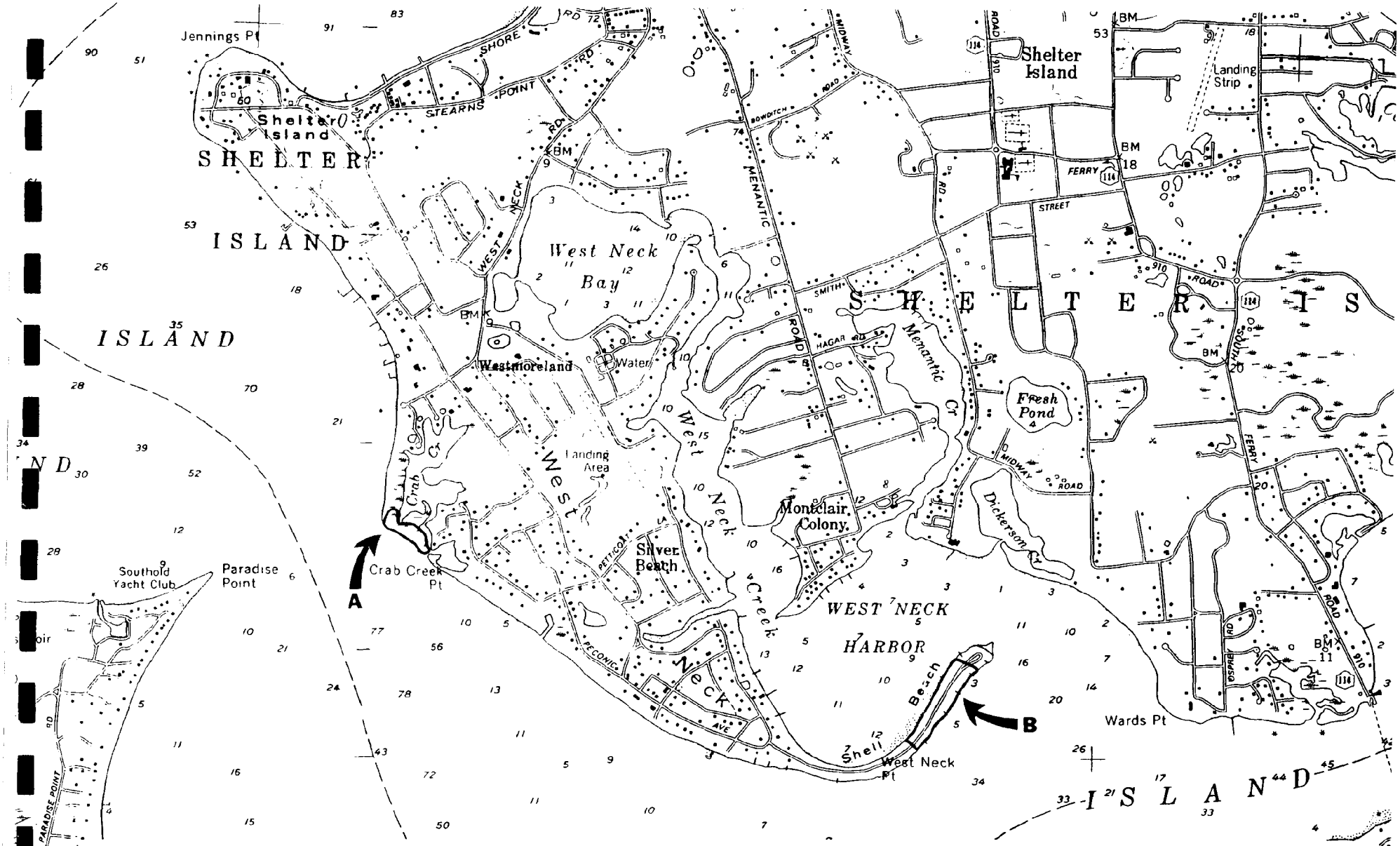


Map No. 53 Town of Shelter Island

A: GIBSONS BEACH **B: MASHOMACK POINT** **C: (See Map No. 52)**

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



MAP NO. 54 TOWN OF SHELTER ISLAND

A: CRAB CREEK

B: SHELL BEACH

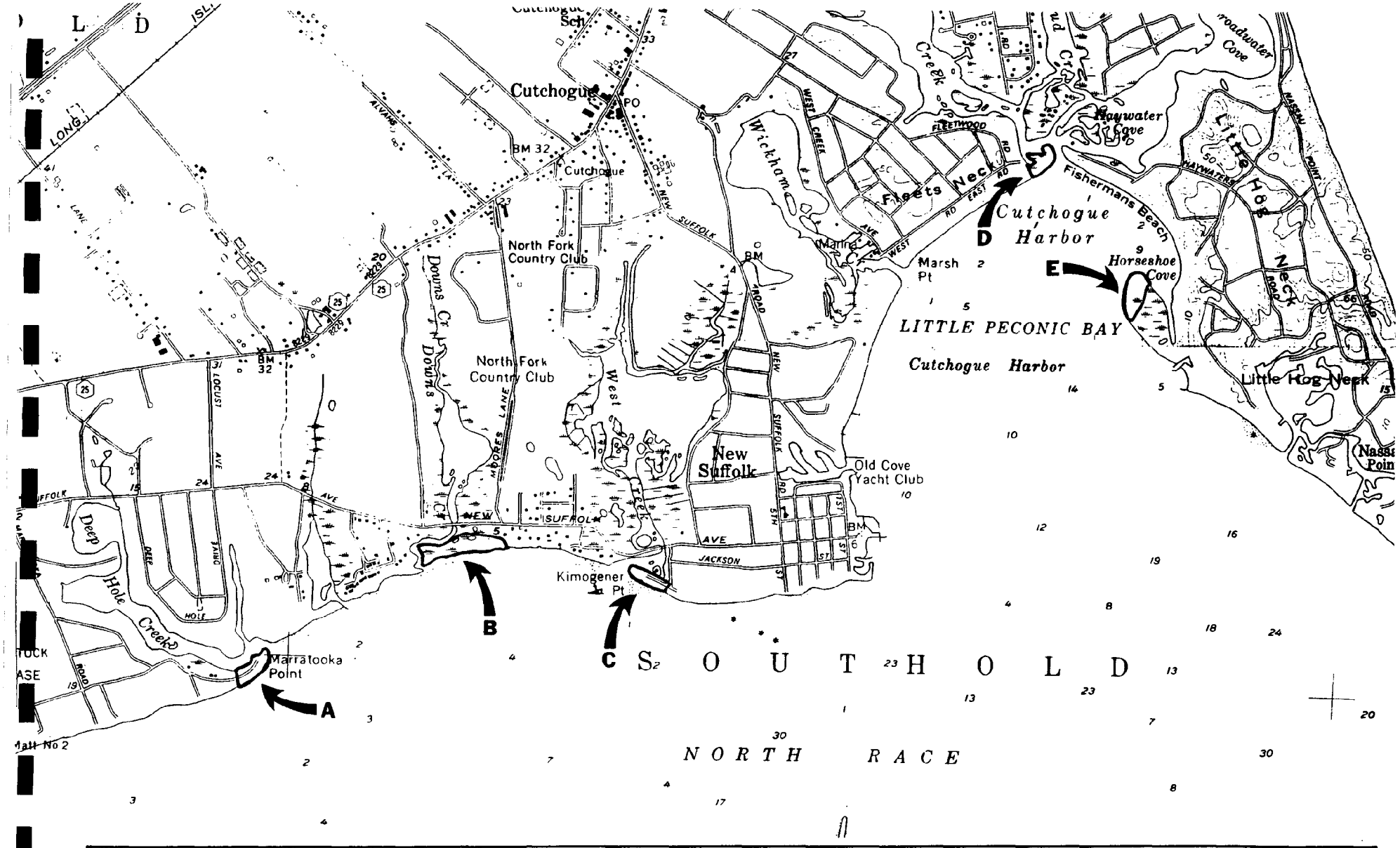
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



MAP NO. 55 TOWN OF SOUTHOLD

A: MARRATOOKA POINT

B: DOWNS CREEK

C: KIMOGENER POINT

D: FLEETS NECK

E: MEADOW BEACH

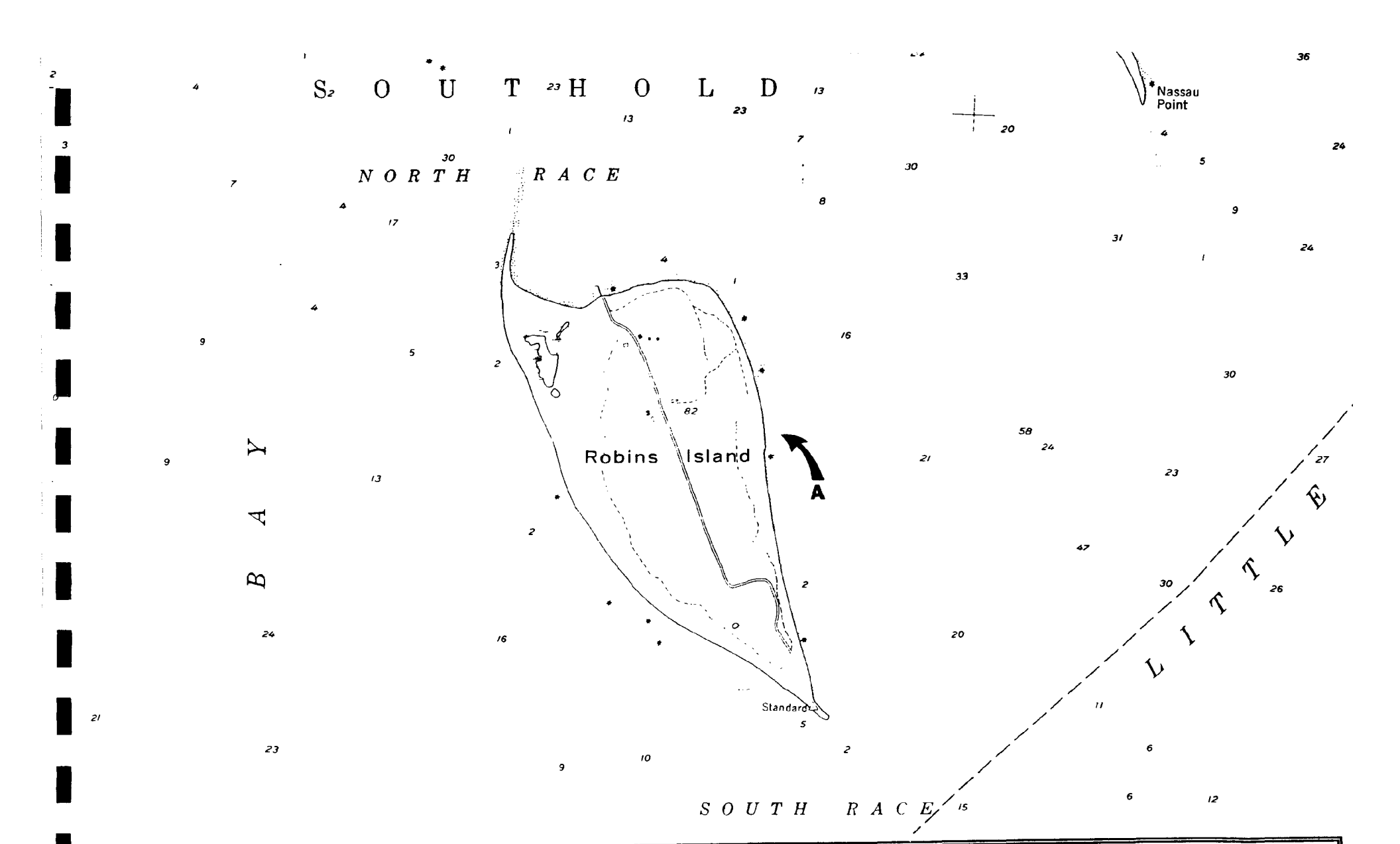
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



MAP NO. 56 TOWN OF SOUTHOLD

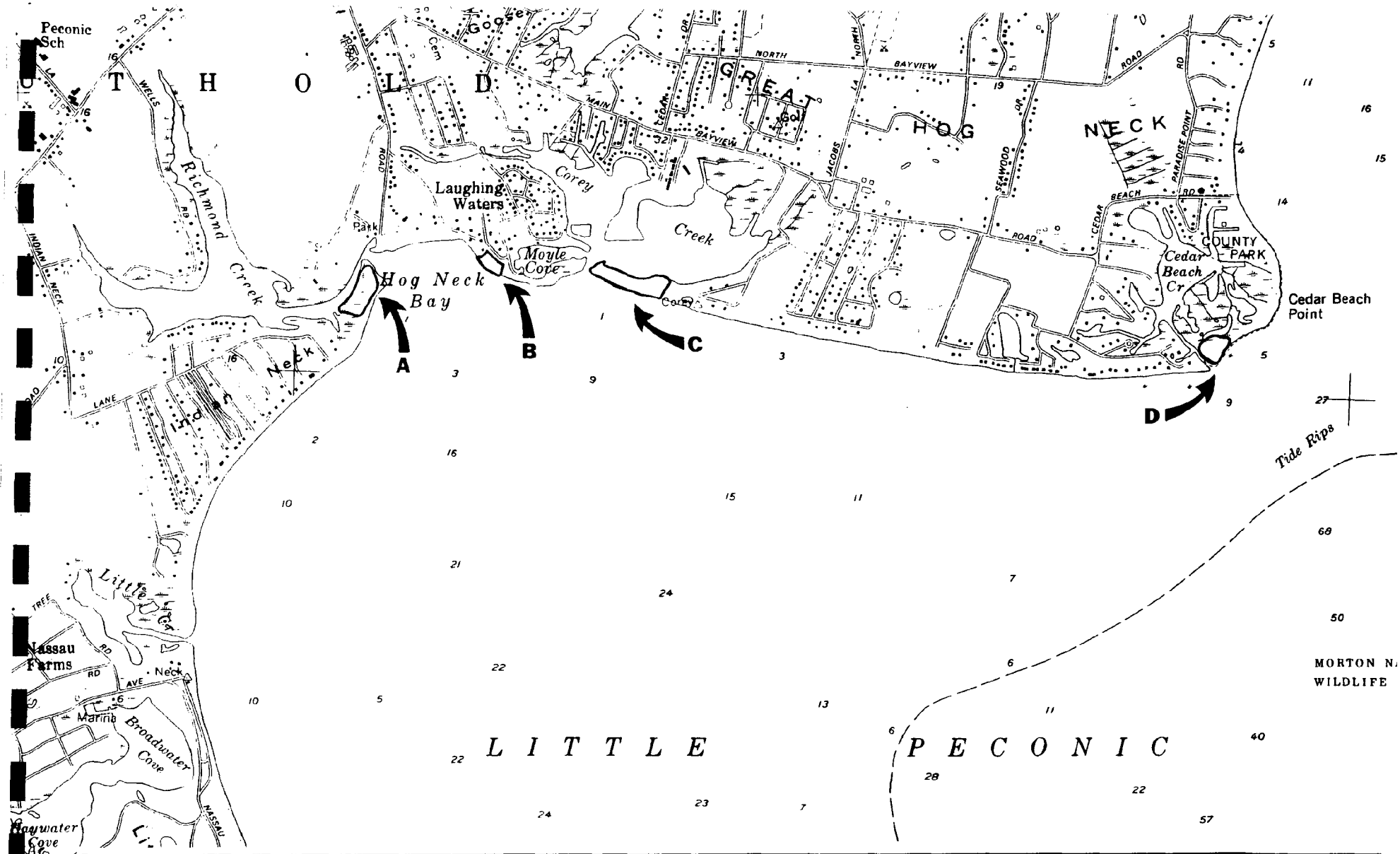
A: ROBINS ISLAND

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'



MAP NO. 57 TOWN OF SOUTHOLD

A: RICHMOND CREEK

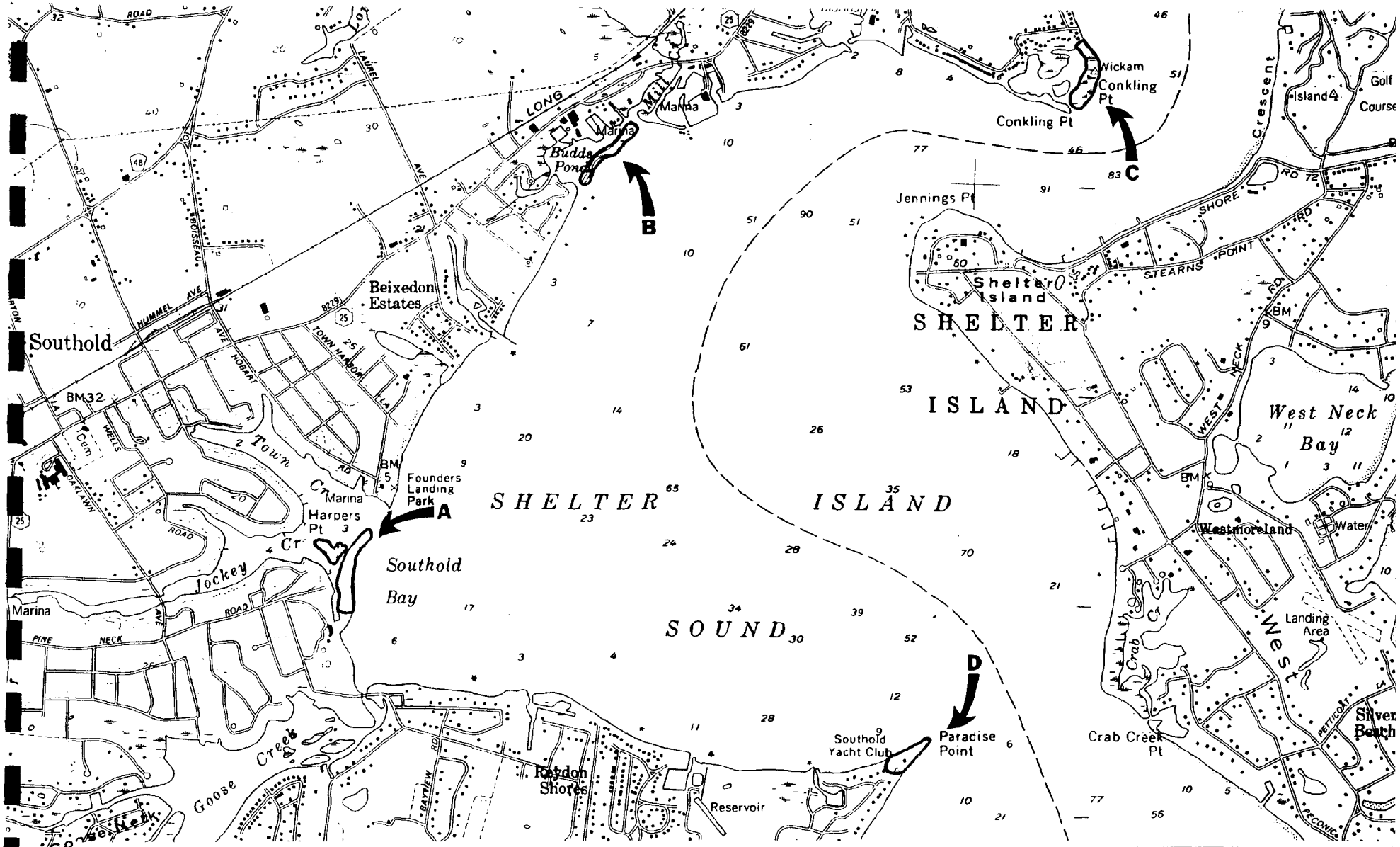
B: HOG NECK BAY

C: COREY CREEK

D: CEDAR BEACH POINT SOUTHOLD

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'



Map No. 58 Town of Southold

A: JOCKEY CREEK SPOIL

B: PORT OF EGYPT

C: CONKLING POINT

D: PARADISE BEACH POINT

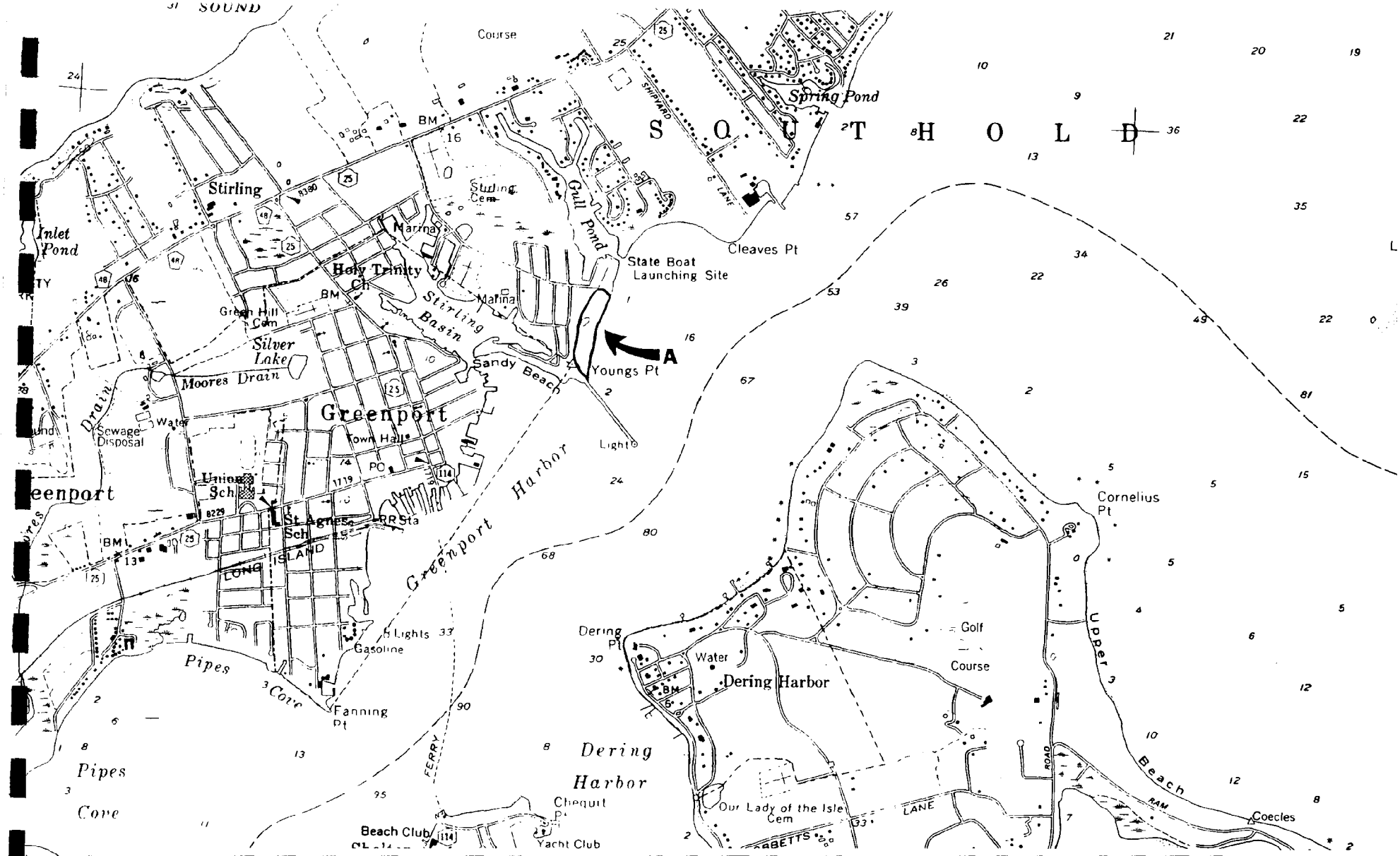
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

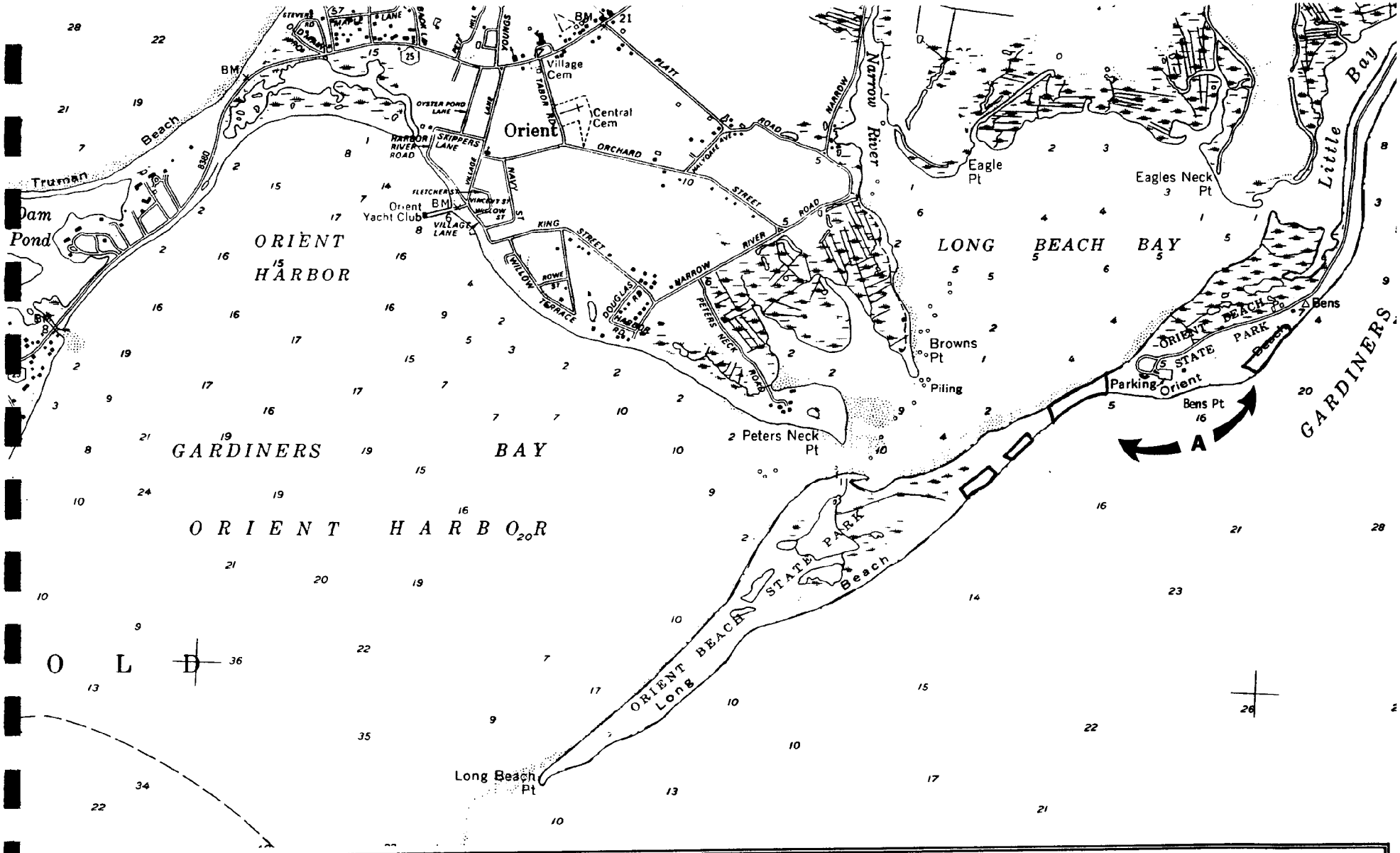


MAP NO. 59 TOWN OF SOUTHOLD

A: GULL POND WEST

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization — *Prepared by T. Hart and G. Capobianco* — March 1991 — **Scale:** 1" = 2000'



Map No. 60 Town of Southold

A: ORIENT POINT STATE PARK

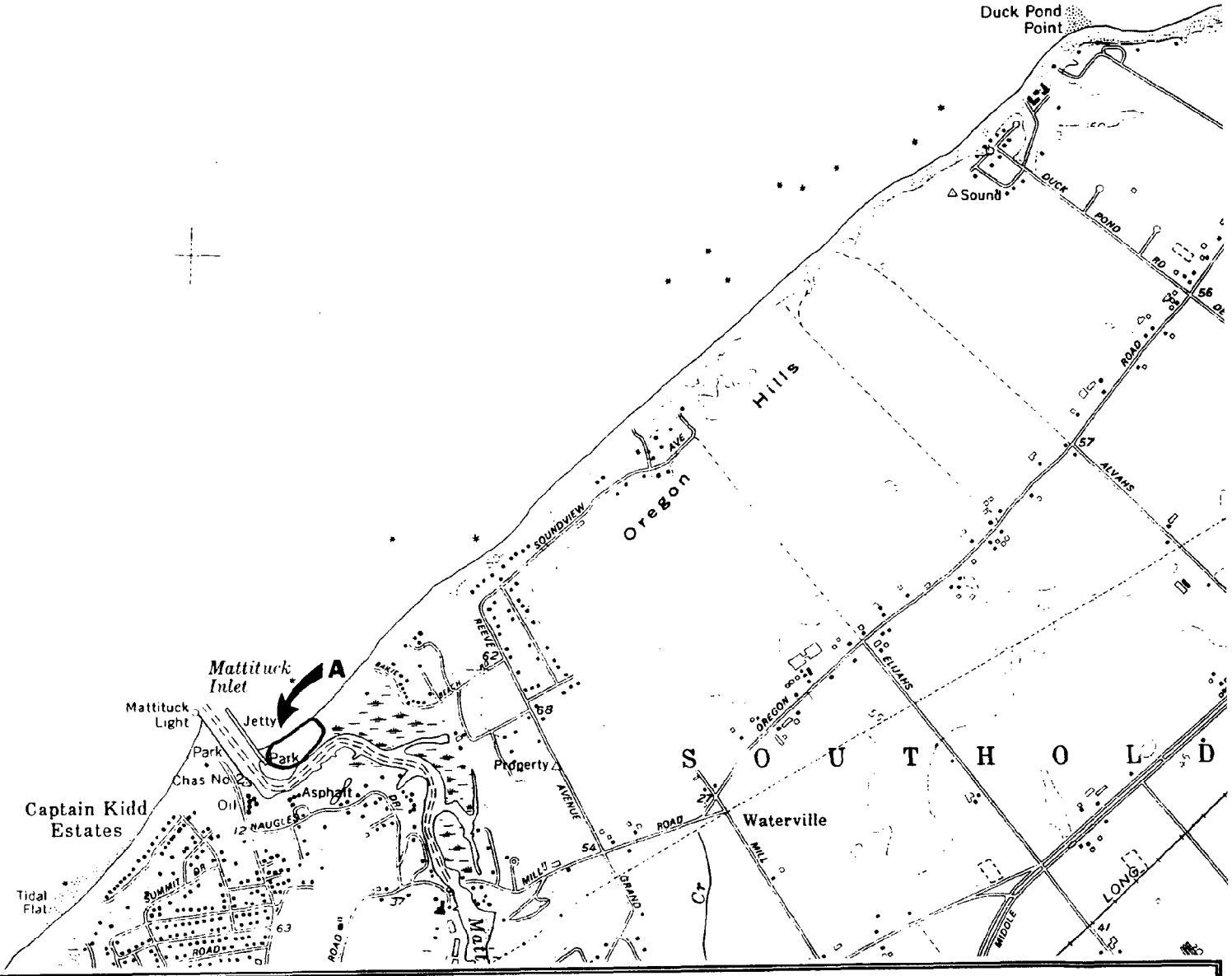
N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

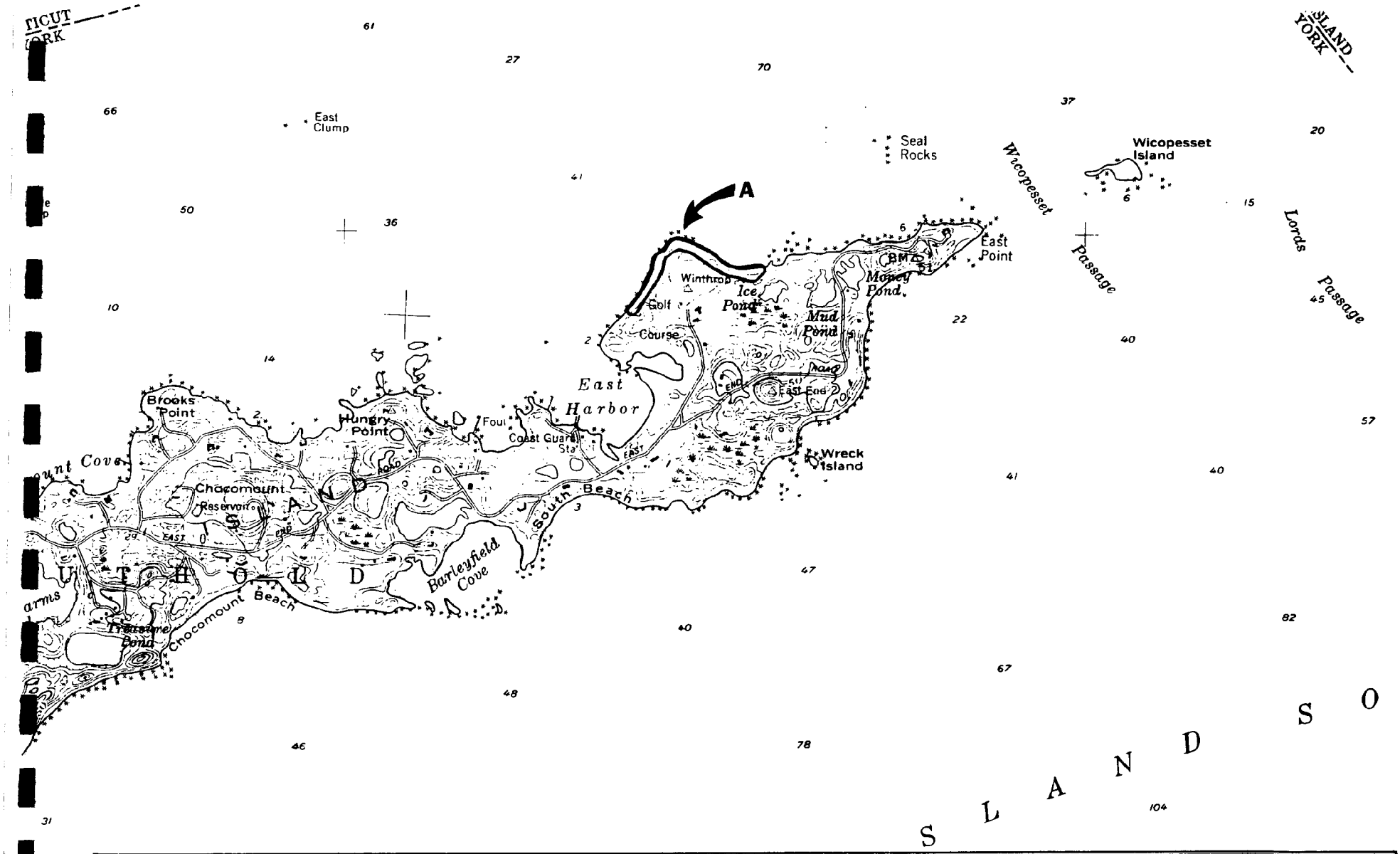


MAP NO. 61 TOWN OF SOUTHOLD

A: MATTITUCK INLET

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization Prepared by T. Hart and G. Capobianco March 1991 Scale: 1" = 2000'

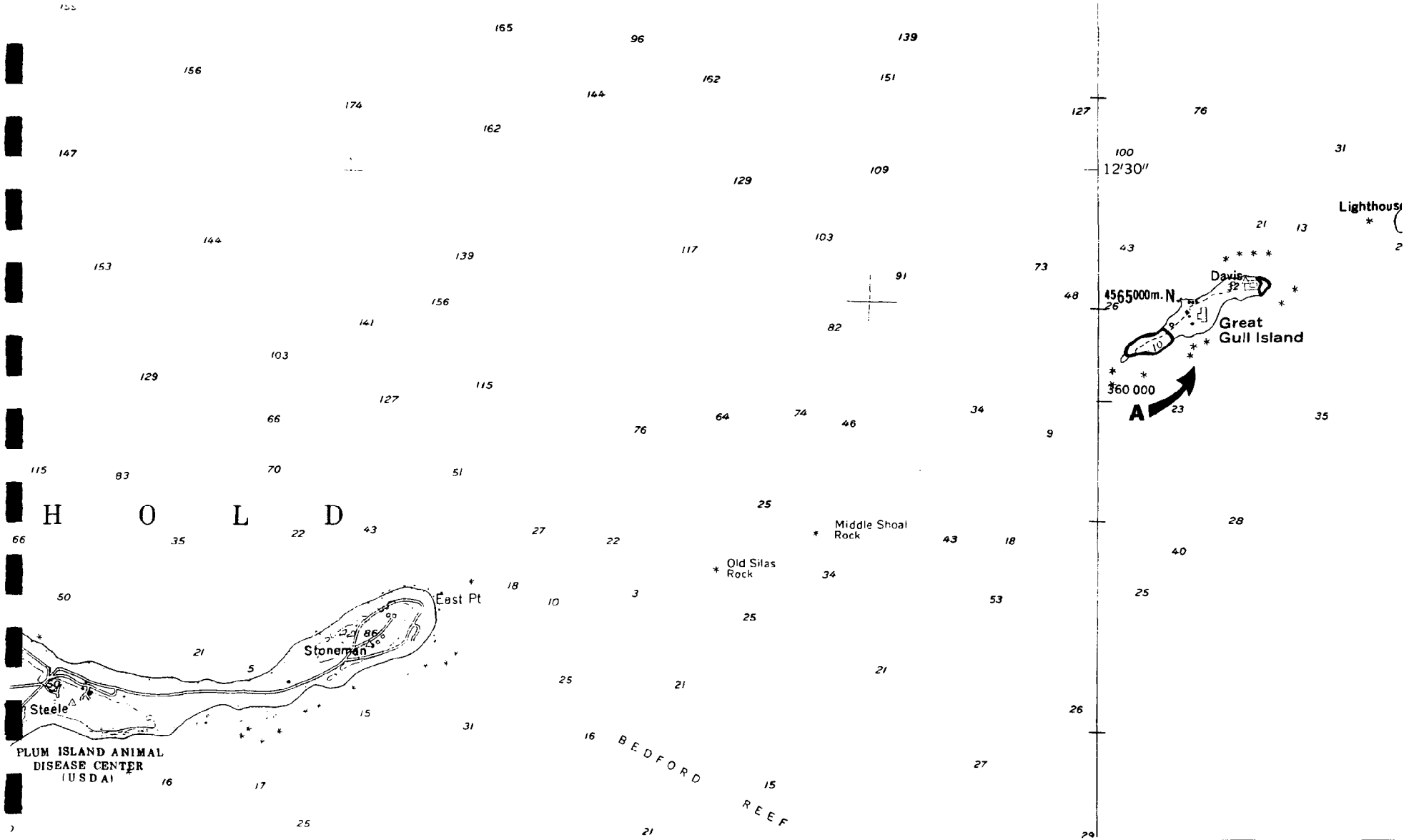


MAP NO. 62 TOWN OF SOUTHOLD

A: EAST END FISHERS ISLAND

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization | Prepared by T. Hart and G. Capobianco | March 1991 | Scale: 1" = 2000'



MAP NO. 63 TOWN OF SOUTHOLD

A: GREAT GULL ISLAND

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco

March 1991

Scale: 1" = 2000'

10.0 Appendices

10.1 Species Referenced by Common Name

PLANTS

Common Name	Scientific Name
American beachgrass	*Ammophila breviligulata*
Beach-pea	*Lathyrus japonica*
Common reedgrass	*Phragmites australis*
Dwarf spikerush	*Eleocharis parvulva*
Dusty-miller	*Artemisia stellariana*
Eelgrass	*Zostera marina*
Naiad	*Najas spp.*
Pondweed	*Potamogeton spp.*
Salt-meadowgrass	*Spartina patens*
Saltmarsh fleabane	*Pulchea odorata*
Sea-rocket	*Cakile edentula*
Seaside goldenrod	*Solidago sempervirens*
Slender spikerush	*Eleocharis elliptica*
Switchgrass	*Panicum virgatum*
Water-shield	*Brasenia schreberi*
Water-weed	*Elodea spp.*
White water-lily	*Nymphaea odorata*

ANIMALS

Common Name	Scientific Name
Birds:	
Black Skimmer	*Rynchops niger*
Black-crowned Night Heron	*Nycticorax nycticorax*
Common Tern	*Sterna hirundo*
Crow	*Corvus brachyrhynchos*
Great Horned Owl	*Bubo virginianus*
Greater Black-backed Gull	*Larus marinus*
Herring Gull	*Larus artentatus*
Least Tern	*Sterna antillarum*
Piping Plover	*Charadrius melodus*
Roseate Tern	*Sterna dougallii*
Ruddy Turnstone	*Arenaria interpres*
Starling	*Sturnus vulgaris*
Mammals:	
Black rat	*Rattus rattus*
Gray squirrel	*Sciurus carolinensis*
Norway rat	*Rattus norvegicus*
Raccoon	*Procyon lotor*
Red fox	*Vulpes vulpes*
Skunk	*Spilogale putorius*
Marsupials:	
Opossum	*Didelphis virginiana*
Fish:	
Bluefish	*Potamtomus saltatrix*
Pipefish	*Sygnathus fuscus*
Sand lance	*Ammodytes americanus*

10.2 Public Agencies

10.2.1 Federal Agencies

Army Corps of Engineers — Karen Gustina, Len Houston
Environmental Analysis Bureau
26 Federal Plaza
New York, NY 10278-0900
(212) 264-0100

Department of Commerce
Office of Ocean and Coastal Resources Management
3300 Whitehaven Street NW
Page Building #1
Washington, DC 20235
(202) 634-4126

Department of the Interior
National Park Service
Gateway National Recreation Area
Floyd Bennett Field, Bldg. 69
Brooklyn, NY 11234
(718) 338-3578

Jamaica Bay National Wildlife Refuge
Floyd Bennet Field, Bldg. 69
Brooklyn, NY 11234
(718) 474-0613

Fire Island National Seashore
120 Laurel Street
Patchogue, NY 11772
(516) 286-7964, 289-4114, 597-6455

Fish and Wildlife Service — Anne Hecht
Region 5 Office
1 Gateway Center, Suite 700
Newton Corner, MA 02158
(617) 965-5100

Cortland Field Office
100 Grange Place
Cortland, NY 13045
(607) 753-9335

Wertheim National Wildlife Refuge — Tom Jasikoff
P.O. Box 21
Shirley, NY 11967
(516) 286-0485

Environmental Protection Agency
26 Federal Plaza
New York, NY 10278
(212) 264-2525

Federal Emergency Management Agency
26 Federal Plaza
New York, NY 10278
(212) 238-8208

10.2.2 State Agencies

NYS Department of Environmental Conservation
Region 1 — Michael Scheibel
Building 40, SUNY-Stony Brook
Stony Brook, NY 11794
(516) 751-7900

Region 2
47-40 [illegible] Street
Long Island City, NY 11101
(718) 482-4997

Information Resources Section — Eugene McCaffery
Natural Heritage Program and Significant Habitat Unit — Kathryn Schneider, John Ozard, Larry Brown
700 Troy-Schenectady Road
Latham, NY 12110-2400
(518) 783-3932

Species Section — Eric Fried
Non-Game Unit and Endangered Species Unit — Robert Miller, Peter Nye
Wildlife Resources Center
Delmar, NY 12054-4767
(518) 439-8082

NYS Department of State — Thomas Hart
Div. of Coastal Resources and Waterfront Revitalization
162 Washington Ave.
Albany, NY 12231-0001
(518) 474-3643

NYS Office of General Services — Robert Stapf
Division of Land Utilization
Bureau of Land Management
Corning Tower, Empire State Plaza
Albany, NY 12242
(518) 474-2195

NYS Office of Parks, Recreation, and Historic Preservation
Long Island Region
Belmont Lake State Park
Babylon, NY 11702
(516) 669-1000

Hecksher State Park — F.P. O'Neil
PO Box 153
East Islip, NY 11730
(516) 581-2100

Hither Hills State Park — George Larsen
Montauk Highway
Montauk, NY 11954
(516) 668-2461

Orient Point State Park — Raymond Dobbins
PO Box 117
Main Road
Orient, NY 11957
(516) 323-2440

10.2.3 County and Local Agencies

Long Island Regional Planning Board
Veterans Memorial Highway
H. Lee Dennison Building
Hauppauge, NY 11788
(516) 360-5189

Nassau County

Nassau County Planning Commission
400 County Seat Drive
Mineola, NY 11501
(516) 535-5844

Nassau County Department of
Recreation and Parks
Eisenhower Park
Hempstead Turnpike
East Meadow, NY 11554
(516) 542-4422

Town of Hempstead
Town Hall
Hempstead, NY 11550
(516) 489-5000

Town of Hempstead
Department of Conservation
and Waterways
1 Parkside Drive
Point Lookout, NY 11569
(516) 431-9200

John D. Zarudsky

Town of North Hempstead
Town Hall
220 Plandome Road
Manhasset, NY 11030
(516) 627-0590

Town of Oyster Bay
Town Hall
Oyster Bay, NY 11771
(516) 922-5800

Suffolk County

Suffolk County Planning Commission
Veterans Memorial Highway
H. Lee Dennison Building
Hauppauge, NY 11788
(516) 360-5189

Department of Parks Recreation, and Conservation John Turner
P.O. Box 144
West Sayville, NY 11796
(516) 367-7534, 924-6767

Town of Babylon
Town Hall
200 E. Sunrise Highway
Lindenhurst, NY 11757
(516) 957-3000

Town of Brookhaven
Town Hall
205 South Ocean Avenue
Patchogue, NY 11772
(516) 654-7800

Town of Brookhaven
Division of Environmental Protection
3233 Route 112
Medford, NY 11763
451-6455

Murray Wade

Town of East Hampton
Dept. of Natural Resources
159 Pantigo Road
East Hampton, NY 11937
(516) 267-8462

Larry Penny
James Cavanagh

Town of Huntington
Town Halls
100 Main Street
Huntington, NY 11743
(516) 351-3030

Town of Islip
Town Hall
655 Main Street
Islip, NY 11751
(516) 224-5485

Town of Riverhead
Town Hall
200 Howell Avenue
Riverhead, NY 11901
(516) 727-3200

Town of Shelter Island
Town Hall
Shelter Island, NY 11964
(516) 749-0015

Town of Smithtown
Town Hall
99 W. Main Street
Smithtown, NY 11787
(516) 360-7602

Town of Smithtown
Dept. of Environmental Protection
124 West Main St.Russell Barnett
Smithtown, NY 11787
(516) 360-7514

Roger Balducci, Harbormaster

Smithtown Town Naturalist
PO Box 222
Commack, NY 11725
(516) 543-7804

Robert Griffen

Town of Southampton
Town Hall
116 Hampton Road
Southampton, NY 11968
(516) 283-6000

Quogue Wildlife Refuge
and Nature Center
Box 492
Quogue, NY 11959
(516) 653-4771

Carl Helms, Manager

Town of Southold
Town Hall
53095 Main Road
Southold, NY 11971
(516) 765-1800

10.3 Private Organzations

American Museum of Natural History — Helen Hays
Central Park West at 79th Street — Chris Thompson
New York, NY 10024

Audubon Society of New York — Ron Dodson
8 Wade Road
Latham, NY 12110
(518) 783-8587

Environmental Centers of Setauket — Amy Frieman
Smithtown
Box 257
Smithown, NY 11787
(516) 979-6344 (9-2 pm)

The Group for the South Fork
Main Street
Bridgehampton, NY 11932
(516) 537-1400

Long Island Beach Buggy Association — John Fritz
290 West 3rd Street
Deer Park, NY 11729
(516) 749-0105, 242-2539

National Audubon Society — David Miller
1789 Western Avenue
Albany, NY 12203
(518) 869-9731

National Audubon Society — Carl Safina
Scully Science Center
306 South Bay Ave.
Islip, NY 11751
(516) 277-4289

Local Audubon Chapters

Four Harbors Audubon — Joel Cook
46 Dawson Ave.
Kings Park, NY 11754
(516) 544-0703

Great South Bay Audubon Society — Diane Teta
771 South Country Road
East Patchogue, NY 11772
(516) 921-3060, 286-4866

Huntington Audubon — Tom Caggiano
145 Hayrick Lane
Commack, NY 11725
(516) 499-7504

Huntington Audubon — William Kolodnicki
Theodore Roosevelt Sanctuary
134 Cove Road
Oyster Bay, NY 11771
(516) 922-3200

South Shore Audubon — Elliot Kutner
461 Dunster Court
West Hampton, NY 11552
(516) 486-7667

The Nature Conservancy

Long Island Chapter — Andrew Walker
250 Lawrence Hill Road
Cold Spring Harbor, NY 11724
(516) 367-3225

South Fork-Shelter Island Chapter — Sara Davison
PO Box JJJJ
East Hampton, NY 11937
(516) 324-1330

Mashomack Preserve — J. Michael Laspia
PO Box 159
Shelter Island, NY 11974
(516) 749-1001

Seatuck Research Program — Randall Downer
PO Box 31
Islip, NY 11751

Volunteers for Wildlife — Sally Ruppert
P.O. Box 12
East Norwich, NY 11732

10.4 References

Becker, P.H., P. Finck, and A. Anlauf. 1985. Rainfall preceding egg-laying - a factor of breeding success in Common Terns (*Sterna hirundo*). Oecologia 65: 431-436.

Bent, A.C. 1963. Life histories of North American gulls and terns. Dover Publications, New York, NY. 337 pp.

Buckley, P.A. and F.G. Buckley. 1978. Guidelines for the protection and management of colonial nesting waterbirds. National Park Service, Boston, MA. 54 pp.

. 1981. The endangered status of North American roseate terns. Colonial Waterbirds 4:166-173.

Bull, J. 1974. Birds of New York State. Doubleday, Garden City, NY. 656 pp.

Burger, J. 1987. Physical and social determinants of nest-site selection in Piping Plover in New Jersey. Condor 89:811-818.

Burger, J., M. Gochfeld, and C. Safina. in prep. Growth and development of Common and Roseate Tern chicks.

Cairns, W.E. 1982. Biology and behavior of breeding piping plovers. Wilson Bulletin 94:531-545.

Downer, R. and C. Leibelt. 1990. 1989 Long Island Colonial Waterbird and Piping Plover Survey. The Seatuck Research Program and The New York State Department of Environmental Conservation, Delmar, NY. 200 pp.

Duffy, D.C. 1986. Foraging at patches: interactions between Common and Roseate Terns. Ornis Scand. 17: 47-52.

Dunn, E.K. 1975. The role of environmental factors in the growth of tern chicks. J. Animal Ecol. 44: 743-754.

Erwin, R.M. 1977. Foraging and breeding adaptations to different food regimes in three seabirds: the Common Tern, *Sterna hirundo*, Royal Tern, *Sterna maxima*, and Black Skimmer, *Rynchops niger*. Ecology 58: 389-397.

. 1989. Responses to human intruders to birds nesting in colonies: experimental results and management guidelines. Colonial Waterbirds 12:1.

Gochfeld, M. 1983. Colony site selection by least terns:physical attributes of sites. Colonial Waterbirds 6:205-213.

Haig, S.M. and L.W. Oring. 1985. Distribution and status of the Piping Plover throughout the annual cycle. J. Field Ornithology 56:334-345.

. 1988. Mate, site and territory fidelity in Piping Plovers. Auk 105:268-277.

Harrison, P. 1983. Seabirds: an identification guide. Houghton Mifflin Company, Boston, MA.

Langham, N.P. 1972. Chick survival in terns (*Sterna* spp.) with particular reference to the Common Tern. J. Animal Ecol. 41: 385-395.

. 1983. Growth strategies in marine terns. Studies in Avian Biol. 8: 73-83.

Leatherman, S.P. 1982. Barrier Island Handbook. University of Maryland, College Park, MD. 109pp.

LeCroy, M. 1971. Young Common and Roseate Terns learning to fish. Wils. Bull. 84: 201-202.

LeCroy, M. and S. LeCroy. 1974. Growth and fledging in the Common Tern (*Sterna hirundo*). Bird Banding 45: 326-340.

LeCroy, M. and C.T. Collins. 1972. Growth and survival of Common and Roseate Tern chicks. Auk 89: 595-611.

Marks, M. 1986. Element stewardship abstract: Least Tern (Sterna antillarum). Eastern Heritage Task Force, The Nature Conservancy.

McLean, D.C., T.S. Litwin, A. Ducey-Ortiz and R.A. Lent. 1987. 1987 Long Island Colonial Waterbird and Piping Plover Survey Report. Cornell Laboratory of Ornithology, Seatuck Research Program, Islip, NY. 174 pp.

Morris, R.D. 1986. Seasonal differences in courtship feeding rates of male Common Terns. Can. J. Zool. 64: 501-507.

Nettleship, D.N., G.A. Sanger, and P.F. Springer (Eds.). 1984. Marine birds: their feeding ecology and commercial fisheries relationships. Can. Wildl. Serv. 220 pp.

Nisbet, I.C.T. 1973a. Courtship-feeding, egg-size, and breeding success in Common Terns. Nature 241: 141-142.

. 1973b. Terns in Massachusetts: present numbers and historical changes. Bird-Banding 44: 27-55.

. 1975 Asynchronous hatching in Common and Roseate Terns, *Sterna hirundo* and *S. dougallii*. Ibis 117: 374-379.

. 1977. Courtship-feeding and clutch size in Common Terns, *Sterna hirundo*. pp. 101-109 in B. Stonehouse and C. Perrins, Eds. Evolutionary Ecology. University Park Press. Baltimore.

. 1978. Dependence of fledging success on egg-size, parental performance, and egg-composition among Common and Roseate Terns, *Sterna hirundo* and *S. dougallii*. Ibis 120: 207-215.

. 1980. Status and trends of the Roseate Tern (*Sterna dougallii*). U.S. Fish and Wildlife Service. 131 pp.

. 1981. Biological characteristics of the Roseate Tern (*Sterna dougallii*). U.S. Fish and Wildlife Service. 112 pp.

. 1983. Territorial feeding by Common Terns. Colonial Waterbirds 6: 64-70.

Nisbet, I.C.T. and M.E. Cohen. 1975. Asynchronous hatching in Common and Roseate Terns, *Sterna hirundo* and *S. dougallii*. Ibis 117: 374-379.

Nisbet, I.C.T. and W.H. Drury, 1972. Measuring breeding success in Common and Roseate Terns. Bird-Banding 43: 97-106.

Reschke, C. 1988. Natural and cultural communities of New York State - Preliminary Draft #4. New York Natural Heritage Program, NYS Dept. of Environmental Conservation.

Safina, C. and J. Burger. 1983. Effects of human disturbance on reproductive success in the Black Skimmer. Condor 85: 164-171.

Safina, C. and J. Burger. 1985. Common tern foraging: seasonal trends in prey fish densities and competition with bluefish. Ecology 66:1457-1463.

Safina, C. and J. Burger. in press. Ecological interactions among prey fish, Bluefish and Common Terns in a coastal Atlantic system. In Seabirds and Other Marine Vertebrates: Competition, Predation, and Other Interactions (J. Burger, Ed.). Columbia University Press. New York.

Safina, C. and J. Burger. in press. Use of Sonar for studying foraging ecology of seabirds from a small boat. Colonial Waterbirds.

Safina, C. and J. Burger. in press. Fish populations and the breeding phenology of Common Terns. Auk.

Safina, C., J. Burger, M. Gochfeld, and R. Wagner. ms 1988. Evidence for food limitation of Common and Roseate Tern production. Manuscript reviewed, revised paper resubmitted, Condor.

Safina, C. and J. Burger. ms 1988. Inter-annual variation in prey availability for Common Terns at different stages in their reproductive cycle. Manuscript reviewed, revised paper resubmitted, Colonial Waterbirds.

Safina, C., D. Witting, K. Smith. ms 1988. Viability of Salt Marshes as nesting habitat for Common Terns in New York. Manuscript under review. J. Wildl. Mgmt.

Safina, C., D. Witting, K. Smith and H. Ruben. 1988. Viability of salt marshes as breeding sites for Common Terns in New York. Contract report to NYS Dept. of Environmental Conservation. 50 pp.

Spendelow, J. and J.D. Nichols. 1989. Annual survival rates of breeding adult roseate terns. Auk 106:367-374.

U.S. Fish and Wildlife Service. 1970. Federal Register 35:16047.

1984. Federal Register 49:22444.

1985a. Federal Register 50:21792.

1985b. Federal Register 50:50726.

1988. Atlantic coast Piping Plover recovery plan. U.S. Fish and Wildlife Service, Newton Corner, MA. 74 pp.

Wilcox, L. 1959. A twenty year banding study of the piping plover. Auk 76:129-152.

US Department of Commerce
NOAA Coastal Services Center Library
2234 South Hobson Avenue
Charleston, SC 29405-2413