



Mt. Sinai Harbor Management Plan

**Town of Brookhaven
Suffolk County, Long Island, New York**



Prepared for:

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December 2006





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December 2007

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ACRONYM LIST

CCE	Cornell Cooperative Extension
COE	United States Army Corps of Engineers
DEM	Digital Elevation Model
ESRI	Environmental Systems Research Institute
GIS	Geographic Information System
HMA	Harbor Management Area
HMP	Harbor Management Plan
LIRPB	Long Island Regional Planning Board
LIS	Long Island Sound
LISS	Long Island Sound Study
LU	Land Use
LWRP	Local Waterfront Revitalization Program
MSD	Marine Sanitation Device
MSRC	Marine Sciences Research Center (SUNY, Stony Brook)
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NP&V	Nelson, Pope & Voorhis, LLC
NPS	Nonpoint Source <i>or</i> National Park Service
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYS OPRHP	New York State Office of Parks, Recreation and Historic Preservation
SCDHS	Suffolk County Department of Health Services
SCDPW	Suffolk County Department of Public Works
SCFWH	Significant Coastal Fish and Wildlife Habitat
SCPD	Suffolk County Planning Department
SPDES	State Pollutant Discharge Elimination System
STPs	Sewage Treatment Plants
SUNY	State University of New York
SWCD	Suffolk County Soil and Water Conservation District
TN	Total Dissolved Inorganic Nitrogen
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service



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1.0 INTRODUCTION



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1.0 INTRODUCTION

1.1 General Overview

Located on the north shore of Long Island, approximately 60 miles east of New York City, and three miles east of Port Jefferson Harbor, Mt. Sinai Harbor lies within the Town of Brookhaven, Suffolk County, New York. The Harbor itself encompasses approximately 538 acres and lies within two separate governmental jurisdictions: the Incorporated Village of Port Jefferson (to the west), and the Town of Brookhaven. There are two unincorporated communities within the Brookhaven Town portion: Mt. Sinai (to the south) and Miller Place (to the east). The bulk of the Harbor lies within Brookhaven Town, including the underwater lands. Mt. Sinai Harbor is the next to last port of refuge for Long Island Sound boaters heading eastward along the north shore of Long Island: Mattituck Harbor in Southold Town, lies another forty miles to the east before reaching the end of Long Island's north shore at Orient Point. **Figure 1-1** shows the location of Mt. Sinai Harbor and the surrounding area.

Mt. Sinai Harbor and its surrounding environs are rich in historic and pre-historic resources of cultural importance. Mt. Sinai Harbor was known by native Americans as Nonowantuck: a name thought to mean "stream that dries up." Archaeological studies have found that Mt. Sinai was an area of aboriginal inhabitation for thousands of years before the area was settled by Europeans, beginning in the 1600s. Mt. Sinai Harbor played a role in the American Revolution and traces of the surrounding community's past can be found in the structures that still remain around the Harbor's shores and in the names of the roads leading to the Harbor.

Today, as in its past, the Mt. Sinai Harbor continues to play a key role in the lives of residents of the communities of Port Jefferson (Village of), Mt. Sinai and Miller Place, as well as the wider community of Brookhaven Town. The Harbor is heavily used for recreational and commercial activities, and it is expected to experience increased demand as infill and redevelopment of the surrounding area continues. As described by the Town of Brookhaven in the workplan for this project:

"Mt. Sinai Harbor is confronted with numerous issues. Water quality has been impaired, and areas of the Harbor are closed to shellfishing. Natural communities have been degraded, fragmented and lost, and the status of the Harbor's shellfish resources are unknown even though they are commercially and recreationally important. The Harbor is used by over 1,000 commercial and recreational vessels that place various stresses on the Harbor's natural resources and that require adequate facilities and navigation channels. Additionally, upland development contributes runoff and associated contaminants."

Historically, both the aquatic and terrestrial resources of the Harbor have been a source of commerce and a number of activities have resulted in changes to the natural environment which are evident to this day. Deforestation resulting from past cordwood logging is not readily evident due to regrowth of successional forests. Settlement patterns have modified the landscape around the Harbor, and, as development increased, filled areas, roads, impervious surfaces and



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1.0 INTRODUCTION

1.1 General Overview

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Historically, both the aquatic and terrestrial resources of the Harbor have been a source of commerce and a number of activities have resulted in changes to the natural environment which are evident to this day. Deforestation resulting from past cordwood logging is not readily evident due to regrowth of successional forests. Settlement patterns have modified the landscape



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around the Harbor, and, as development increased, filled areas, roads, impervious surfaces and destabilization have caused runoff and pollution impacts. One of the more significant impacts involved the loss of tidal wetlands due to sand and gravel mining and Harbor dredging.

Despite historical impacts and recent environmental stresses, Mt. Sinai Harbor retains many environmental and aesthetic attributes. The Town of Brookhaven has designated Mt. Sinai Harbor as a Marine Sanctuary in recognition of these resources. The intent of developing and implementing a Harbor Management Plan is to improve and protect the natural resources of the Harbor while enhancing their use and sustainability. As this document will demonstrate, the Harbor and its watershed contain an abundance of natural and cultural resources that can continue to enhance the high quality of life it currently offers, provided they are carefully restored, managed and protected. The challenge is to balance the increasing recreational and commercial demands placed on the Harbor with the ability of the environmental resources to support these demands. Successfully accomplishing this balance will entail a careful management strategy designed to protect and enhance existing natural resources against overuse, pollution and neglect. Therefore, the underlying premise of the Mt. Sinai Harbor Management Plan (HMP) is to provide a clear guide to direct future actions in Mt. Sinai Harbor that will result in the restoration and effective management of its environmental resources while also improving public access to (and enjoyment of) those resources.

1.2 Project Scope

This Harbor Management Plan is intended to guide future actions by the Town of Brookhaven and the Incorporated Village of Port Jefferson insofar as they may impact Mt. Sinai Harbor and the contributing stormwater watershed. This HMP consists of the following elements:

- An inventory and description of relevant natural, historical, archaeological, cultural and scenic resources of the Harbor and its surrounding watershed; using pertinent literature, interviews and field investigations within Mt. Sinai Harbor and its contributing watershed;
- An analysis of this inventory, using maps and graphics to illustrate the inter-relationships between resources and issues;
- A synopsis of the key issues and opportunities of concern to the residents and users of Mt. Sinai Harbor;
- A description of the goals and objectives of this harbor resource management strategy;
- Recommendations to resolve identified problems or to take advantage of opportunities to improve existing situations; and
- An implementation strategy that identifies the following:
 - key players with jurisdiction within the Harbor,
 - the timing and nature of strategic actions the players need to initiate in order to protect the Harbor, and
 - potential funding sources to assist in implementation.



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The plan assesses and establishes priorities, and recommends specific actions designed to achieve the following goals:

- improve the environmental resources of the Harbor;
- protect the cultural, historical and archaeological resources of the surrounding watershed;
- reduce conflicts between different uses of the Harbor;
- improve public access to the Harbor; and
- create a balance between demands on the natural resources and protecting those resources from damage through overuse.

The Mt. Sinai HMP conforms to the policies set forth in: comprehensive planning documents adopted by the Town of Brookhaven, and the New York State's "*Guidelines for the Preparation of Harbor Management Plans*" (1994).

Additional guidance was provided by staff members of the New York State Department of State's Coastal Resources Division. This plan was made possible through a grant from the New York State Department of State (DOS) under the Coastal Zone Management and the Local Waterfront Revitalization (LWRP) programs.

Toward that end, this HMP contains five (5) distinct components, each intended to address specific needs identified by the Town of Brookhaven as essential elements of a Harbor management strategy. These are as follows:

- An inventory and analysis of existing resources within the Harbor;
- A stormwater management strategy;
- A pollutant source control component;
- An enhanced public access strategy; and
- A public education and outreach program.

Finally, the Mt. Sinai Harbor Management Advisory Committee played a critical role in the preparation of this HMP. The membership of this Committee and the substance of their input are detailed in **Section 3.0**

1.3 Study Area Boundaries

The Mt. Sinai HMP is tightly focused on the enhancement and protection of the Harbor's environmental resources. However, in order to achieve the purposes of this plan, this document focuses on two separate, but inter-related, areas.

The study area was developed in accordance with the Department of State's Guidelines for Harbor Management Plans (1994). The boundary of the primary study area includes the land beneath the waters of the Harbor and the immediately adjacent uplands. This area encompasses a total of approximately 881 acres (of which 343 acres are upland and 538 acres are underwater



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lands that comprise the Harbor). This primary area has the greatest and most immediate impact on the natural resources of the Harbor and their uses.

The drainage area includes the study area's upland as well as additional surrounding upland areas that contribute surface water drainage into the primary area's uplands and the Harbor. It should be noted that some portions of the study area west of the Harbor are beyond the drainage area boundary due to the inclusion of historically significant areas and the use of roadways as primary study area boundaries. The drainage area encompasses nearly 763 acres of land above mean sea level (of which approximately 701 acres are upland and 62 acres are marsh lands that fringe the Harbor). The drainage area includes more of the topographic watershed, the groundwater watershed, and culturally and aesthetically important resources around the Harbor. Natural and cultural resources in the secondary area have an influence on the Harbor and also are influenced by the Harbor, albeit to a much lesser degree than that of the study area. The resources in the broader drainage area are more typically the subject of a Land Use Plan rather than a Harbor Management Plan and therefore are referenced, but not dealt with in detail, in order to remain true to the focus of the HMP.

The boundaries of the study area and drainage area are described below and are shown graphically in **Figure 1-2**.

Description of Study Area Boundary for Mt. Sinai Harbor

Beginning at the termination of Fairway Drive at the Village of Port Jefferson's Beach on Long Island Sound, and moving southward to the westerly side of Crystal Brook Hollow Road, then running eastward on the southerly side of Old Post Road and northeastward on the southerly, landward side of Shore Road to the intersection of Shore Road with Pipe Stave Hollow Road then along the eastern, landward boundary of Pipe Stave Hollow Road, then on the southern, landward side of the same road where it makes a 90 degree turn to the northeast along the southerly end of the Harbor until its intersection with Graham Court, then along the landward side of Graham Court to its intersection with Harbor Beach Road where the line continues along the south side of the road in a westerly direction to its terminus at the east jetty at the entrance to Mt. Sinai Harbor.

The study area includes 359.2 acres of upland and 520.5 acres of underwater land.

Description of Drainage Area Boundary for Mt. Sinai Harbor

Beginning just east of Village Beach Road in the Village of Port Jefferson and moving southward, approximately 800 feet westward of Winston Drive, to the terminus of Settlers Way, then southeastward past Shady Path before turning south at Edgewood Road, then eastward towards New Street, crossing North Country Road at Grasslands Circle before turning north at Farmhouse Court, then east at Birch Hill Road, then north at Knoll Crest and crossing through Audubon Gate Road, then westward on the north side of the intersection of Oaks Drive and Harbor Beach Road and continuing along the north side of Harbor Beach Road.



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The drainage area boundary was topographically determined using Digital Elevation Models and Geographic Information System software. Land areas located above mean sea level, encompassing the tidal marsh lands fringing the Harbor, are included within the drainage area boundary.

1.4 Governmental Jurisdictions within the Harbor

Jurisdictional responsibility for land within the primary and secondary study areas of Mt. Sinai Harbor is divided between the Village of Port Jefferson and the Town of Brookhaven, with the Town controlling the vast majority of the upland, wetlands and underwater lands. **Figure 1-2** shows the jurisdictional lines within the Mt. Sinai HMP and the distribution of the primary and secondary land drainage areas between Brookhaven Town and the Village of Port Jefferson. **Table 1-1** illustrates the respective areas by jurisdiction.

Table 1-1
LAND AREA BY GOVERNMENTAL JURISDICTION

Jurisdictional Entity	Study Area ¹			Drainage Area ²		
	Underwater Land (ac)	Upland (ac)	Total (ac)	Underwater Land (ac)	Upland (ac)	Total (ac)
Town of Brookhaven	519.4	254.0	773.4	56.2	548.6	604.7
Village of Port Jefferson	18.1	89.2	107.3	6.1	152.1	158.2
Total	537.5	343.2	880.7	62.3	700.7	762.9

¹ Includes surface water to mouth of the Harbor.

² Includes marsh land above mean sea level fringing the Harbor.

The Town of Brookhaven owns the underwater lands within Mt. Sinai Harbor, and maintains the authority to regulate and control the use of all the underwater lands within the Harbor. This authority is derived in part from the Dongan Patent of December 27, 1686. Issued by Governor Thomas Dongan pursuant to authority granted him by the King of England. This historical legal document granted certain powers and rights to freeholders or settlers through a body of elected Trustees. The Patent granted rights to all waterways, ponds, streams, brooks, wetlands, rivers and other estuaries within the Town of Brookhaven to the Trustees, who were empowered with the rights to raise taxes, and sell or dispose of proprietary lands within the Town. The freeholders of the Town through the Trustees had the power to make acts, order, “*to plead and be impleaded, defend or be defended in law.*” (Excerpts of Dongan Patent as quoted on **Town of Brookhaven website, 2005**). Other authorities are derived from and delegated by the State of New York.



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In 1963, the Village of Port Jefferson became an incorporated village within the Town of Brookhaven. The Village has jurisdiction over its uplands, and in accordance with Section 46-a of the State Navigation Law, may regulate the speed, operation, anchoring and mooring of vessels upon waters up to 1,500 feet from the shoreline of the Village. Although the Village has this authority in the unincorporated part of the Town within 1,500 feet of the Village's shoreline, the Town of Brookhaven retains ownership and authority to control the use and occupation of the underwater lands within that area. The Village's extraterritorial authority to regulate vessels upon waters within 1,500 feet of its shoreline (pursuant to Section 46a of the State Navigation Law) does not preclude the Town's authority to regulate and control through its regulatory police powers and ownership, the lands lying under those waters.

Most of the Harbor is navigable by motor, sail or hand-powered boats. Within the portions of the Harbor that lie outside the Village's extraterritorial jurisdiction (1,500 feet), the operators of those vessels may be regulated by the Town of Brookhaven, in accordance with Section 130.17 of New York State Town Law. As with the Village, the Town may regulate vessels, speed, vessel operation, and anchoring or mooring locations and practices. The Town also has the authority to regulate the placement and use of structures or any other use in or of the Harbor, in accordance with New York State Navigation Law, New York State Town Law, New York State Municipal law, the State Constitution and the various authorities granted by the State to towns. This includes the authority to zone areas for specific uses and protection of the environment, for the general health, safety and welfare of the Town.

This HMP takes into consideration the fact that Mt. Sinai Harbor has been designated a **Marine Sanctuary** by the Town of Brookhaven. During the 1970s, the Town took a series of actions whereby privately owned waterfront parcels that were used for marinas and boat yards were purchased by the Town and the operators of those businesses given permission (whether through contract, lease or other legal contractual arrangements) to ply their trade on publicly owned land on the north side of the Harbor. The Town's efforts had more than one practical result. The first was that private, water-dependent marine businesses were relocated on the deepest, most navigable portion of the Harbor; a location which offers boaters the closest and safest access out of the Harbor into Long Island Sound. This portion of the Harbor had been extensively dredged years earlier. (See *Section 2.2.2 Sand Mining and Dredging Operations*.) The second was to create publicly owned ramps, dockage and mooring fields in the same vicinity. The net effect of these actions was the consolidation of several forms of public access to the water: beaches, boat docks and moorings, and the provision of support amenities such as an education center, recreation facilities, restroom facilities, pump-out stations, boat ramps, harbor security, and parking. The improvements have not only enhanced public access to the water; they have helped protect the Harbor's natural characteristics and high natural resource values by providing for re-vegetation of the shoreline, reducing direct discharges of stormwater runoff, and reducing discharges of human wastes from boats into the water.

This HMP is predicated on the policy that while abutting private property owners enjoy reasonable rights of access to and from the waters of the Harbor, the Town has been pro-active in providing appropriate public access to Harbor resources in a manner that protects, indeed



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enhances, the Harbor's natural characteristics and high natural resource values. As will be shown in **Section 2**, the Town's actions have consistently attempted to protect the **Marine Sanctuary** status of Mt. Sinai Harbor.

Local Management Jurisdictions within the Study Area

For reasons noted in the prior sub-section, the management of Mt. Sinai Harbor falls principally within the jurisdiction of the Town of Brookhaven. The Village of Port Jefferson has jurisdiction over the portions of upland and surface waters that lie within the Village and proximate to the Village line. Developing an effective HMP requires a clear understanding of the jurisdictions of respective agencies within each level of government, as well as an understanding of the existing authorizing legislation and relevant regulations. The following two sub-sections explain the departments or boards within the Town and Village having jurisdiction over activities within and adjacent to the Harbor.

The primary governmental body of the Town of Brookhaven is the Town Board. Under the Dongan Patent, the authority issued by the Governor was to the Trustees of the Freeholders and Commonalty of the Town of Brookhaven, known as the Board of Trustees. The elected members of the Town Board are the same as the Board of Trustees. The Board of Trustees convenes each year to transfer its authority to the Town Board of the Town of Brookhaven.

1.4.1 Local Management Jurisdictions within Brookhaven Town

Town Board/Town Trustees

- Adopts all legislation within the Town.
- Issues permits under Chapter 81 of the Brookhaven Town Code for Category A Wetland Permits.
- Responsible for overall administration and management of the various departments.
- Reviews change of zone petitions for changes in land use district classifications.
- Oversees enforcement policies.

Town Clerk

- Receives dock permits for all Town owned docks, including Cedar Beach Marina.
- Maintains list of marina slip applicants and issues permits for occupancy of slips.

Planning Board

- Issues land use approvals under Chapter 85 of the Brookhaven Town Code for subdivision of land and site plans as well as some clearing permits, special permits and variances.

Zoning Board of Appeals

- Reviews requests for variances from the Brookhaven Town Code.
- Reviews requests for Special Exceptions pursuant to *Chapter 14 Houseboats* for pre-existing uses of houseboats.

Department of Planning, Environment and Land Management

Division of Environmental Protection - Waterways Management Supervisor



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- Maintains Nature Center program and facility at Cedar Beach Town Park.
- Administers shellfish seeding program.
- Maintains and operates mobile pumpout vessels on Mt. Sinai and Port Jefferson Harbors.
- Issues Category B permits pursuant to *Chapter 81 Wetlands and Waterways*.
- Receives Category A projects pursuant to *Chapter 81 Wetlands and Waterways*.
- Implements shellfish management areas and winter grounds (seasonal and conditional shellfish harvest openings and closures) under Chapter 57 of the Brookhaven Town Code, in coordination with NYSDEC on behalf of the Town of Brookhaven.

Department of Aviation and Transportation

Division of Harbors & Waterways

- Issues mooring permits for Port Jefferson Harbor.
- Oversees Harbormaster position, staff and maintains Harbormaster vessels.
- Oversees enforcement, management and education through Harbormaster position.

Highway Department

- Responsible for maintenance of roads and stormwater retention facilities and structures.

Department of Parks, Recreation, Sports & Cultural Resources

- Issues mooring permits for Mt. Sinai Harbor.
- Manages park properties owned by the Town, including Cedar Beach Park and Marina, and Satterly's Landing.
- Develops and manages recreation programs on park properties.

Department of Public Safety

Division of Local Law Enforcement/Security

- Enforces Town Code with regard to boating, fishing, shellfishing activities within wetlands and waterways of the Town through park patrol and Public Safety Officers.

1.4.2 Local Management Jurisdictions within Port Jefferson Village

Village Mayor and Trustees

- Legislative body administering Village Code and overseeing management of Village offices.
- Reviews change of zone petitions for changes in land use district classifications.

Planning Board

- Reviews and approves applications to subdivide land into building lots.
- Reviews and issues permits for site plans, tree clearing and site regrading.

Zoning Board of Appeals

- Reviews petitions for variances from the Village Code.

Highway Department (Public Works)

- Has charge and supervision of the construction, reconstruction, alteration, improvement, maintenance, repair, cleaning, snow removal and lighting of all streets, passways, parking fields,



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buildings, parks, playgrounds, sidewalks, storm drainage systems and structures, beaches, docks, moorings and all other such structures and facilities in the nature of public works under the jurisdiction of the Village.

- Places approved signs and banners in designated locations within the Village.

Parks Department

- Maintains Village park facilities in coordination with Highway Department.
- Conducts park recreation and educational programs.

Commissioner of the Village Constables

- Authorizes Village Constables as peace officers (pursuant to Criminal Procedure Law of New York) to enforce Village Codes.

Parks and Recreation Advisory Council

- Makes recommendations to the Village Mayor and Trustees regarding recreational programs, equipment and personnel needs; and modification or construction of recreational facilities.

Conservation Advisory Council

- Charged with improvement and preservation of environmental quality within the Village.
- Ex-officio members include Chairman of Planning Board, Highway Department Supervisor, Parks Department Supervisor, Village Attorney and others as may be appointed by the Village Trustees.
- Advises the Village Board of Trustees on matters affecting the preservation, development and use of natural and man-made features of the Village so as to enhance the environment.
- Maintains inventory of properties within the Village and provides recommendations for their preservation and use.
- May recommend changes to Village laws and regulations as they pertain to environmental quality.
- May accept land by resolution of Village Trustees.



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1.5 Applicable Legislation for Harbor Management Activities

The management of Mt. Sinai Harbor by the above-noted governments (and their respective boards, committees, councils, and departments) is defined by authorizing legislation.

1.5.1 Authorizing legislation within Town of Brookhaven

The laws and regulations of the Town of Brookhaven that directly affect or facilitate management of land and water uses Mt. Sinai Harbor are noted below along with a brief description of their intent and relevant information as it pertains to harbor management.

Chapter 8 Bay and Harbor Bottoms

- This law regulates the placement of boat moorings to avoid conflicts between moorings, provide for safe navigation, protect existing natural resources, public health and welfare, and to ensure the provision of water dependent recreational access.
- Defines general and designated mooring areas within the Town.
- Defines the Mt. Sinai Harbor Mooring Area.
- Charges the Director of the Division of Environmental Protection with the issuance of mooring permits.

Chapter 10 Parks and Recreation Areas

- Section 10-29 of this law regulates Town marinas and mooring areas.
- Authorizes the Town Clerk to issue seasonal permits for dock slips.
- Authorizes the Commissioner of Parks, Recreation and Human Resources to issue transient dock slip permits; to designate seasonal and transient docks slips and mooring areas; and to designate which slips and moorings will be seasonal or transient.
- Designates Mt. Sinai Marina (a.k.a. Cedar Beach Marina) as a Town marina.
- Designates Mt. Sinai Harbor as a Town mooring area.
- Defines resident and non-resident status, seasonal and transient permits, and regulations regarding the use of such permits and their revocation.
- Sets regulations and procedures for the impoundment, storage and sale of boats used in violation of this Chapter.

Chapter 13 Boat Control

- Regulates navigable waters within Town of Brookhaven.
- Gives commanding or executive office of the Suffolk County Police Marine Bureau the authority to temporarily close the harbor, channel or waterway in the event of an emergency.
- Limits boat speed within a channel to twelve (12) mph.
- Limits boat speed within one hundred (100) feet of any area designated as a boat basin, marina, harbor, bathing area, and anchored or moored vessel to five (5) mph.
- Restricts use of searchlights, running of engines for purpose of charging batteries, testing or running auxiliary equipment between the hours of 10.00 p.m. and 7:00 a.m.
- Restricts use of water ski boats between one hour before sunset and one hour after sunrise.



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Chapter 14 *Houseboats*

- Defines residential use of boats and prohibits the use, mooring and docking of floating homes or residential houseboats within the Town.
- Pre-existing houseboats (prior to 6-08-87) required a special exception from the Zoning Board of Appeals.

Chapter 20 *Departments and Bureaus*

- Defines positions and responsibilities for the following departments:
 - Parks, Recreation and Sports and Cultural Resources
 - Town Clerk
 - Planning, Environment and Land Management
 - Superintendent of Highways
 - Public Safety

Chapter 22 *Docks*

- Prohibits use of docks, piers, bulkheads or jetties owned by or under the control of the Town for bathing, swimming or diving adjacent thereto.

Chapter 32 *Fish Nets*

- Restricts use of fish nets in waters covering lands vested in the Trustees of the Freeholders and Commonalty of the Town of Brookhaven in Mt. Sinai Harbor, except that bait nets 40 feet or less in length may be used to take fish to be used whole for bait only.
- Prohibits use of pound nets on any lands owned by the Town or the Trustees.

Chapter 33 *Flood Damage Prevention*

- Designed to minimize public and private losses due to flood conditions in specific areas and to comply with the Federal Flood Insurance Program.
- Authorizes the Chief Building Inspector to issue permits for construction within flood zones as designated on Federal Flood Insurance Rate Maps.
- Defines the standards to be used by the Board of Zoning Appeals when issuing variances.

Chapter 35 *Grading*

- Regulates and controls the regrading of land with the intent of:
 - preventing serious and irreparable damage to natural resources;
 - minimizing and retarding the erosive effects of wind and water;
 - preventing the depreciation of property values;
 - preventing the removal of lateral support for abutting streets, lands and structures,
 - preventing damage to natural watersheds; and
 - providing adequate drainage for surface water runoff, and protecting persons and property from flooding.
- The Planning Board must review building permits and certificates of occupancy to ensure conformance with regrading standards.

Chapter 57 *Shellfish*

- Restricts the taking of shellfish to residents of Brookhaven Town.
 - Allows residents to take shellfish for personal consumption without need of a permit, from Town-owned land during each day of the open season, excluding Sunday, for



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the sole purpose of consumption as food in his or her own household, shellfish not to exceed 1/2 bushel in the aggregate of all kinds taken per day, per resident, except for clams of any kind, which are limited to a total of 100 per day per resident, except as otherwise restricted herein in § 57-16.

- Restricts residential harvesting of shellfish for noncommercial purposes with any device other than a hand-held rake having a head no wider than 14 inches measured perpendicular to the tynes and a straight handle not in excess of seven feet in length or by any means other than use of a resident's hands and feet. Possession or use of any device or aid other than as described above shall be presumptive evidence of an intent to harbor shellfish for commercial purposes.
- Defines timing of shellfish harvests, types of harvesting equipment that may not be used, minimum required size for harvested shellfish, and amount of allowable harvest per day.
- Sets forth procedures and regulations pertaining to the issuance of commercial shellfish permits.
- Controls the buying of shellfish for commercial purposes by requiring permits for buyers and for buyers helpers.
- Designates Shellfish Management Areas and Winter Grounds.

Chapter 70 Tree Preservation

- The purpose of this law is to regulate the destruction and removal of trees in order to protect trees and their ecological, aesthetic and other benefits.
- This law requires a site plan or subdivision approval as well as a permit from the Planning Board before destroying any tree on a parcel of land zoned commercial or industrial in excess of two acres in size or on a residential zoned parcel.

Chapter 80 Critical Environmental Areas; SEQRA Implementation

- The purpose of this law is to protect valuable environmental resources through Town of Brookhaven agency implementation of the State Environmental Quality Review Act.
- The law designates, among others, the Brookhaven Coastal Zone Area Critical Environmental Area, CEA, which includes Mt. Sinai Harbor.
- The CEA designation requires Brookhaven Town agencies assume lead agency status for review of applications located within a designated CEA.
- The legislation defines Unlisted, Type I and Type II actions for a designated CEA.

Chapter 81 Wetlands and Waterways

- The purpose of this law is to protect and preserve the surface waters, underwater lands and tidal and freshwater wetlands of the Town.
- This law prohibits the dredging or filling of any tidal or freshwater wetland.
- This law also regulates activities within 150 feet of any tidal or freshwater wetland, including the construction of docks and catwalks.



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Chapter 85 Zoning Code

Article XXVIII

- Provides additional protection for property in areas identified as wetlands, surface waters and adjacent buffer areas.
- Applies to all fresh and salt water wetlands identified by the Town of Brookhaven and the State of New York.
- Prohibits the use of wetland and underwater land in determining lot yield for subdivision purposes.
- Sets a minimum acreage of 200,000 square feet for any residentially zoned lot containing wetland, unless underlying zone sets a higher minimum acreage.
- Sets a minimum acreage of 40,000 square feet for any non-residentially zoned lot containing wetland and sets standard for Maximum Floor Area Ratio of 7% for that portion of the property designated as a wetland.

Article XXXV

- § 85-374. Waterfront lots, requires a permit pursuant to Chapter 81 Wetlands and Waterways prior to the issuance of a building permit for any construction or alteration of any structure located on a freshwater or tidal wetland, as defined by the Wetlands Law of the Town of Brookhaven.
- § 85-388. Clustered Development, defines standards and procedures for clustered subdivision plat approval.

Appendix Subdivision Regulations

- Defines procedures and standards to be used by the Planning Board in issuing subdivision plat approval.

1.5.2 Authorizing Legislation of the Village of Port Jefferson

The laws and regulations of the Village of Port Jefferson that directly affect or facilitate management of land and water uses Mt. Sinai Harbor are noted below along with a brief description of their intent and relevant information as it pertains to harbor management.

Chapter 15 Conservation Advisory Council

- Defines the responsibilities of the Council in advising the Village Board and Trustees on environmental quality issues and open space.

Chapter 19 Constables

- Defines the position and enforcement responsibilities of Village Constables.

Chapter 31 Departments

- Defines the responsibilities of several departments, of which one, Public Works, is charged with maintenance of roads and drainage facilities within the Village.



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- Chapter 65 Parks and Recreation Advisory Council*
- Defines the Council's responsibilities to the Village Board and Trustees regarding the creation, maintenance and operation of recreational programs and facilities within the Village.
- Chapter 111 Coastal Erosion Hazard Areas*
- Administers the Coastal Erosion Management Program pursuant to Article 34 of New York State Environmental Conservation Law.
- Chapter 129 Environmental Quality Review*
- Implements the New York State Environmental Quality Review Act.
 - Modifies the State Regulations by setting forth specific thresholds for Type I actions.
- Chapter 145 Flood Damage Prevention*
- Designed to prevent damage from flooding and erosion and to qualify for and maintain participation in the National Flood Insurance Program.
- Chapter 220 Subdivision Regulations*
- Sets standards and procedures for the Planning Board's review of subdivision applications.
- Chapter 241 Trees, Grading and Land Clearing*
- Designed to prevent the destruction and damage of trees and other natural vegetation; the indiscriminate and excessive cutting of trees; the removal, stripping and storing of topsoil; and the indiscriminate or excessive clearing of land.
 - A clearing permit from the Planning Board is required for any clearing of trees and for grading.
 - The law sets forth Clearing Standards for all lots larger than 10,000 square feet in area, except for developed lots and lots smaller than 10,000 square feet in area, which are subject to clearing limits as determined by the Planning Board.

1.6 County, State and Federal Agencies Having Jurisdiction Over Harbor Activities

Although the Town of Brookhaven and the Village of Port Jefferson are the two principal municipal governments with jurisdiction over Mt. Sinai, with the Town having the sole jurisdiction over the Harbor bottom, effective management of Mt. Sinai Harbor will involve the cooperation of county, state and federal agencies, some of which have over-riding jurisdictions relative to the Town and the Village. The following description of key agencies explains their sphere of influence within the Harbor and/or the secondary contributing study area. The source of their authority, e.g. regulations and legislation, is noted also.



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1.6.1 Agencies with Regional Jurisdiction: Suffolk County

Department of Health Services (SCDHS)

- Pursuant to Article 6, Suffolk County Sanitary Code, this department oversees the siting of all septic waste disposal systems within the primary and contributing study areas.

Department of Public Works (SCDPW)

- This department has performed dredging and provided oversight of dredging operations within Mt. Sinai Harbor and assists at the requests of Towns and Villages in Suffolk County with dredging activities to maintain navigable waterways.

Department of Parks, Recreation & Conservation (SCDPRC)

- This department manages a park (Chandler Estate Park) bordering on the south side of Mt. Sinai Harbor.

1.6.2 Agencies with Regional Jurisdiction: New York State

Department of Environmental Conservation (NYSDEC)

- Pursuant to *New York State Environmental Conservation Law, Article 15 (Protection of Waters), Article 24 (Freshwater Wetlands Program), and Article 25 (Tidal Wetlands Program)*, this department has jurisdiction in the following programmatic areas:
 - oversees the Shellfish Monitoring Program;
 - issues permits for construction within freshwater wetlands and a 100 foot adjacent upland area;
 - issues permits for construction/dredging activities within tidal wetlands and an adjacent area up to 300 feet, based on specified physical shoreline features; and
 - manages tidal wetlands throughout the Harbor.
- New York Code of Rules and Regulations (NYCRR) Part 41, Title 6 – shellfish management, harvest closed and open shellfish waters.

Department of State (DOS)

- Pursuant to *New York State Waterfront Revitalization and Coastal Resources Act, 1992*, this department oversees the Coastal Zone Management Program within the State of New York. DOS issues letters of coastal consistency for projects that require permits from the Army Corps of Engineers and ensures that actions occurring within Federally-regulated waters are consistent (to the extent practicable) with the NYS Coastal Management Program policies as well as local waterfront revitalization program (LWRP) policies, where applicable.

1.6.3 Agencies with Regional Jurisdiction: Federal

U.S. Army, Corps of Engineers (COE)

- Pursuant to the Rivers and Harbors Act of 1899, this department has authority for the maintenance of the entrance to Mt. Sinai Harbor's channel and breakwaters.
- The ACOE issues permits for construction/dredging activities occurring within Federally-regulated waters.



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- All regulated activities must receive concurrence from the DOS before the Corps can issue a permit.

U.S. Environmental Protection Agency (EPA)

- This department regulates the discharge of stormwater pursuant to the Clean Water Act of 1972 and its subsequent amendments.

U.S. Coast Guard

- This agency is responsible for the location and placement of navigation aids within Long Island Sound. It also is responsible for enforcement of Federal boat safety regulations.

1.7 Regulatory Context of a Harbor Management Plan

This section examines the relationship of a Harbor Management Plan to the Local Waterfront Revitalization Program through the legislative and regulatory background of the programs administered by the DOS.

The Town of Brookhaven developed a Draft Local Waterfront Revitalization Program (LWRP) in 1989 pursuant to the *Waterfront Revitalization and Coastal Resources Act*, which was adopted by the State of New York in 1992. The State's legislation stems from Federal legislation, *Coastal Zone Management Act of 1972*, which required coastal States within the United States to develop and adopt coastal zone management plans. Within New York State, individual coastal communities may design highly specific management plans targeted towards the unique needs and demands of their local waterfront conditions.

In 1996, the State of New York adopted amendments to its enabling legislation for the express purpose of allowing municipalities to regulate uses and activities within harbors and nearshore areas of the coast. As a result, harbor management plans not only address the water-based issues of Harbors, surface waters and underwater lands, they provide a clear set of guidelines for local, State and Federal activity within the Harbor.

In 1989, Brookhaven Town prepared a draft LWRP to address the land-based issues of the Town's coastal zone. This document was submitted to the DOS and is pending further revisions prior to consideration for adoption by the Town and the State. The Mt. Sinai Harbor Management Plan is designed to complement and be consistent with this draft document, yet stands on its own as an important management tool.

The boundary of Mt. Sinai Harbor and its immediate upland, which are the primary focus of the Mt. Sinai HMP, lies entirely within the Coastal Zone Area as defined by the Town of Brookhaven's Draft LWRP. Most of the contributing watershed also lies within this zone. It should be noted that the boundaries of the Mt. Sinai HMP are different from that of the *Local Implementation District (LID)* boundaries as set forth in the draft LWRP document. The Draft LWRP uses Port Jefferson Village's eastern boundary as the dividing line between LID VI (Mt.



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Sinai Harbor) and LID VII (Port Jefferson Harbor). The boundary of this HMP includes the eastern portion of Port Jefferson Village where it abuts the Harbor because management of Mt. Sinai Harbor will require the joint management efforts of the Village of Port Jefferson and the Town of Brookhaven, both of which are represented on the Mt. Sinai HMP Advisory Committee.

Figure 1-3 illustrates the boundaries of the draft LID boundaries relative to the primary and secondary study areas of this Harbor Management Plan.

1.8 Benefits of a Harbor Management Plan

As described in the State's own *Guidelines for the Preparation of Harbor Management Plans (New York State Department of State, 1994)*, pages 2 and 3:

The benefits of a harbor management plan to a municipality are similar to those of an approved LWRP. In coastal waters, the State and Federal government have the authority to regulate in-water activities, and most municipalities have little or no authority to regulate structures and uses of surface waters and underwater lands other than vessel uses. Harbor management plans enable local governments to address a wide range of uses in Harbor and nearshore areas in full partnership with the State's Coastal Management Program. These benefits include:

- *determining the status of harbor areas and developing a strategy to achieve goals for Harbor areas;*
- *requiring State and Federal adherence to harbor management plans (see subsection on **Consistency of Federal, State and Local Actions**, below);*
- *technical assistance from the Department of State in addressing harbor management issues;*
- *financial assistance for small-scale construction and land acquisition projects; research, design and other preconstruction activities that implement the harbor management plan; and*
- *addressing harbor and near shore issues that transcend local boundaries.*

An important additional benefit is that when a Harbor management plan is approved by the Secretary of State as a component of a LWRP, a municipality is delegated the authority to regulate all structures and uses of waters and underwater lands. A municipality may then directly regulate the construction, size and location of structures in, on or above waters and the use of surface waters and underwater lands within the municipality or bounding the municipality to a distance of fifteen hundred feet from the shore. They may impose fees for reasonable expenses incurred by the municipality in carrying out this regulatory authority.

This new authority does not limit or change any existing authority a municipality may now have to regulate certain Harbor uses and activities. If a municipality is regulating any Harbor use or activity based on an authority not derived from Article 42 of the Executive Law, the exercise of that authority, even if used to implement the municipality's Harbor management plan, is not subject to the Secretary of State's approval.



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One of the key benefits to the Town of adopting a Local Waterfront Revitalization Plan is the fact that Federal and State actions must comply (to the extent practicable) with the Town's Plan. The consistency principle extends to Harbor Management Plans that are adopted pursuant to an approved LWRP.

Consistency of Federal, State and Local Actions with Harbor Management Plans

Upon approval of a Harbor management plan as a component of an LWRP by the Secretary of State and the Federal Office of Ocean and Coastal Resource Management, Federal and State actions, such as funding, permit, approval and direct actions by agencies are required to be undertaken in a manner consistent with the approved LWRP and harbor management plan. Where a harbor management plan includes standards for the siting or construction of in-water structures and the use of surface waters and underwater lands, no Federal or State agency may undertake or permit any actions that are inconsistent with those standards.

The consistency benefit is particularly significant with regard to harbor management, since little or no activity occurs over or in surface waters without Federal or State involvement.

As with LWRPs, in exchange for Federal and State consistency with approved Harbor management plans, local governments must bind themselves to the Harbor management plan. Usually, the vehicle is the same local consistency law that binds the local government's regulatory, approval, direct and funding actions to the policies and purposes of the LWRP. (Source: Guidelines for the Preparation of Harbor Management Plans. (DOS, 1994))

It should be emphasized here that when the Town of Brookhaven's LWRP is adopted by the Town and ratified by the State and Federal governments, the Mt. Sinai HMP will be an integral part of that document. At that point in time, Federal and State agencies will be required to act (to the greatest extent practical) in a manner consistent (as described above) with the guidelines set forth in both the LWRP and the HMP. In the absence of an approved LWRP, the Mt. Sinai HMP will serve as a constructive guide for the Town of Brookhaven and the Village of Port Jefferson in their joint efforts to manage Mt. Sinai Harbor's resources.

1.9 Reader's Guide

The format of this report was designed to facilitate its use by government officials that will be responsible for its implementation, as well as to encourage its use and understanding by the general public. The following descriptions explain the information addressed within the various sections of this report.

Section 1 consists of a general **overview** of Mt. Sinai Harbor. It explains the reasons why a Harbor Management Plan (HMP) was developed for Mt. Sinai Harbor, and the relationship between the HMP and the LWRP. The benefits of the HMP are explained, as are the physical boundaries of the study area. Finally, this section describes the different levels of government with jurisdiction over the Harbor and its contributing watershed.



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Section 2 contains a detailed **inventory** of the water and land-based resources of the Harbor. This section also contains background information about existing legislation and other plans that affect the daily management of Mt. Sinai Harbor.

Section 3 describes the **development** of the Harbor management plan and public outreach efforts that took place during the research and writing of this HMP. It also includes a discussion of the public's issues of concern regarding the use of the Harbor, and the potential opportunities for protecting the Harbor and improving the access to it.

Section 4 sets forth the **vision** behind the Mt. Sinai HMP in the form of Goals and Objectives.

Section 5 explains the **recommendations** that came out of the analyses and the public outreach sessions.

Section 6 consists of a detailed **implementation strategy** that identifies the key players and the actions they must take in order to implement this HMP effectively. It also includes a suggested implementation schedule as well as potential funding sources to finance the recommended components of this Plan.

Section 7 contains **references** used in the compilation of this harbor management plan.

Tables and **Figures** provide concise listings and graphic illustrations of key data.

Appendices contain key reports, excerpts, data and information that are relevant background material for this HMP.



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2.0 CHARACTERIZATION OF THE HARBOR & ITS WATERSHED



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2.0 INVENTORY AND CHARACTERIZATION OF THE HARBOR & ITS WATERSHED

The purpose of this Section is to provide a comprehensive and detailed inventory of the key attributes of the Harbor and its contributing watershed so as to provide a comprehensive scientific and regulatory basis for understanding the issues and how to address them through the Mt. Sinai Harbor Management Plan.

2.1 Natural Resources

2.1.1 Topography & Soils

Mt. Sinai Harbor lies along the north shore of Long Island and is separated from Long Island Sound by a barrier beach, known as Cedar Beach, along its northern extent. This flat spit of land juts westward from the Harbor's eastern end and terminates at the Harbor's entrance to Long Island Sound. The remainder of the Harbor is surrounded by steeper, generally undulating topography which slopes towards the low-lying areas. The topography varies from a low elevation of 0 feet above sea level along the Harbor's edge, to a high elevation of approximately 200 feet in the south part of the drainage area. The slope ranges from 0 percent (marsh areas along southern edge of Harbor) to as much as 35 percent in places. **Figure 1-2** provides an illustration of topography in and around Mt. Sinai.

The shoreline and harbors of Long Island were formed thousands of years ago when the advancement and retreat of two separate glaciers left behind a land mass of sand and gravel above the ocean's surface. The first glacier advanced south across Canada and the northern United States during the Wisconsin glacial age approximately 60,000 years ago. The leading edge of this massive sheet of ice reached as far south as the center of what is now Long Island. As temperatures warmed, the ice mass melted and left miles of glacial debris along its southern edge. Nearly 40,000 years later, a second glacier advanced and stopped within a few miles of the first glacier before melting. The jagged edge of this second glacier formed the harbors and inlets of the north shore of Long Island. By 6,000 years ago, glacial melt waters had shaped the Island's landscape, flooded Long Island Sound, and defined the coastline.

The U.S. Department of Agriculture's Soil Survey of Suffolk County, New York (**Warner et al., 1975**) provides a complete categorization, mapping and description of soil types found in Suffolk County. **Figure 2-1** depicts the soil types that were identified by the Soil Survey as occurring within the Harbor management area. Tidal marsh (Tm) occupies most of the Harbor and adjacent shoreline. The uplands are underlain predominately with Carver and Plymouth sand (CpE) with 15-35 percent slopes, Plymouth loamy sand (PIB, PIC) with 3-16 percent slopes, and Riverhead sandy loam (RdC) with 8-16 percent slopes. These soils consist of deep, rolling, excessively and well drained, coarse and moderately coarse materials. Specific descriptions of the soils found within the Harbor management area are located in **Appendix A**.



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The steeply sloped Carver and Plymouth sand soils that surround much of the Harbor pose the greatest risk for erosion. For that reason, appropriate measures must be taken during construction in these areas to prevent erosion during land clearing and regrading activities. Additionally, the spit of sand that separates the Harbor from Long Island Sound is designated as occurring within a Critical Erosion Hazard Area (**Figure 2-1**). No construction activities are generally permitted seaward of this boundary, as the risk of erosion due to wind and wave energy is high.

2.1.2 Geomorphology & Bathymetry

The geomorphology of the Long Island Sound shoreline at either side of the entrance to Mt. Sinai Harbor can be characterized as bluffs. The Harbor itself is an irregularly shaped basin surrounded mostly by steep slopes with some low lying shoreline and intertidal marsh areas, particularly in its central and southern regions. Intertidal shoals and sandy beaches border this barrier beach, which is primarily a spit feature created by coastal processes. Now stabilized and modified by anthropogenic activities, the spit resembles a dune environment. Dunes characteristically have sparse vegetation, but do support grasses and shrubs that are tolerant of dry conditions, and that tend to provide stability to coarse-textured soils. Mt. Sinai's barrier beach performs the highly important function of protecting the Harbor from long fetches of wind and waves across the Long Island Sound, allowing the Harbor to remain relatively calm during most storm weather conditions. The calm conditions within this generally shallow Harbor have promoted the development of extensive intertidal marsh over the past several thousand years.

The longshore current within Long Island Sound along the north shore transports sediment westward along the shoreline from Miller Place to the entrance of Port Jefferson Harbor (**TOB, 1990**). This longshore drift formed the Cedar Beach spit, which has been terminated artificially at the breakwaters of the current inlet jetties. Prior to the early 1900's, the entrance to Mt. Sinai Harbor was located in the central to eastern part of the Harbor. This entrance was subject to shoaling and eventually was moved and structurally defined by the installation of stone jetties at the northwest side of the harbor.

An 1829 historical map of Mt. Sinai Harbor shows an abundance of marsh islands, a primary entrance in the central portion of the Harbor, and a breach in the sand bar on the northwest side of the Harbor (**Figure 2-2**). In 1927, the central entrance was allowed to silt up and a permanent new entrance was dredged on the northwest side of the Harbor and armored with stone jetties. This activity coincides with the beginning of sand and gravel mining within the Harbor. The natural breach and the newly created Harbor entrance are both visible on the 1933 Nautical Chart of Mt. Sinai Harbor (**Figure 2-3**). Nearly half of the Harbor was mined for its underlying sand and gravel during the mid 1960's, creating deeper areas within the northern portion of the Harbor that currently range from approximately 6 to 46 feet in depth. The effects of the substantial dredging operations and the new Harbor entrance are illustrated in the 1984 Nautical Chart of Mt. Sinai Harbor (**Figure 2-4**). Additionally, the construction of the stone jetties around 1927



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appears to have disrupted the natural, westerly longshore transport of sand from Miller Place towards Port Jefferson Harbor. One result of this disruption in the longshore transport of sand is that the Port Jefferson Village Beach (East Beach) sandbar, located just west of the jetties, has become substantially reduced in size, as evidenced by long-term visual observations of East Beach and illustrated on the historic nautical charts of the Harbor (**Figures 2-2 through 2-4**). The resultant dredge spoils from dredging operations conducted at the mouth of the Harbor in March 2006 were deposited on East Beach for use in beach and dune renourishment.

Bathymetry

Bathymetry, defined as the depth of water relative to sea level, is a governing factor of both long- and short-term hydrodynamics within the enclosed area of a harbor. Mt. Sinai Harbor experiences limited wave action, which is typical of most of Long Island's north shore bays. Normally, this would result in only a small transfer of sediments throughout the harbor. Consequently, the depth of the harbor changes very little over time (**Gross et al. 1972**). The current bathymetric configuration of Mt. Sinai Harbor does not fit this profile. Indiscriminate dredging in the northern half of the Harbor (which began at the turn of the century and continued through the mid 1960's) resulted in an underwater floor profile characterized by deep holes up to 46 feet in depth and uneven Harbor bottom terrain.

Presently, the Harbor's northern basin (including mooring areas, navigational channel, and marinas) averages 3-5 m (9.8 to 16.4 feet) depth at high tide, with a large hole occurring at the east end of the basin which reaches approximately 46 feet of depth (**Decker, 1998**). The remainder of the Harbor is significantly shallower, with an average depth of 1.7 m (5.6 feet) at high tide. The tidal range fluctuates between 6.0 and 6.9 feet. In 1972, the high tide volume was measured at 5.6 billion gallons and the low tide at 2.7 billion gallons (**Decker, 1998**).

Recently, NOAA-NOS-ORCA1 30m resolution, 7.5 minute bathymetric digital elevation models (DEMs) were converted to raster format, mapped, and exported to image files using ESRI ArcGIS 9.0 software. The figure below shows depths (as negative elevations) relative to mean low water within Mt. Sinai Harbor. These depths progress from light (most shallow) to dark (deepest) in tone. Shorelines were constrained to NOAA nautical chart mean high water values.

Detailed hydrodynamics (residual circulation patterns, sediment transport, bottom currents, tidal flushing and exchange rates) govern the ecological processes, habitats and water quality within a harbor. Understanding the physical relationships within a harbor allows managers to make informed decisions regarding pollution inputs and harbor management strategies. Creating a standardized long term research effort to specifically investigate the physical parameters within Mt. Sinai Harbor and the water and sediment exchange rates with the Long Island Sound, along with the diligent water quality studies that are already in place would assist harbor managers in the decision making process.

As part of a detailed survey conducted by the Marine Sciences Research Center at SUNY, Stony Brook, **Gross et al. (1972)** had determined general circulation patterns and crude flushing rates

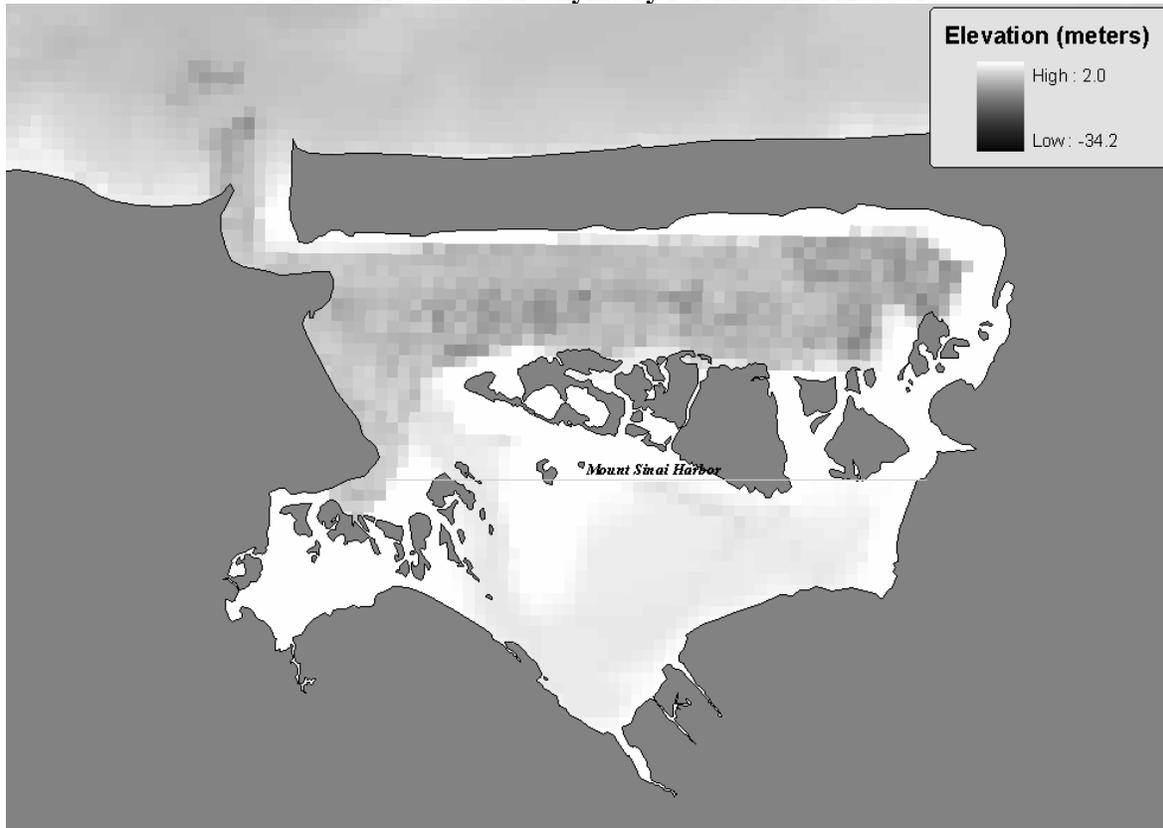


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within the harbors based on freshwater discharge (direct stream runoff plus groundwater seepage) and tidal volumes during flood and ebb tides.

30 meter Resolution Bathymetry for Mt. Sinai Harbor



This survey revealed that Mt. Sinai Harbor has a tidal residence time of approximately 0.7 days, with fresh water in the southern portion of the Harbor generally taking longer to flush out into Long Island Sound than fresh water nearer to the mouth. The longer residence time in the south part of the Harbor caused by estuarine circulation patterns can cause the Harbor to become a sediment and nutrient trap, with the pollutants becoming deposited and buried within the bottom substrates.



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Harbor Substrates

Dredging activities have left rather complex distributions of bottom substrates in the Harbor. However, the protected nature of Mt. Sinai Harbor has resulted in the deposition of fine-grained materials farthest from the entrance and the deposition of the coarsest sediments closer to the mouth of the Harbor. Sediment data from the northern portion (**Gross, et al., 1972**) and southern portion of the Harbor (**NYSCD, 1969**) was electronically digitized by NP&V into a GIS database to produce the sediment distribution map provided in **Figure 2-5**. A mix of coarse and fine sand occurs along the northern half of the inner Harbor; silt occurs within the southern portion; and a tongue of very coarse sand leads out of the Harbor. These substrates dictate the biota (e.g. shellfish) that are able to colonize and live within the Harbor's bottom. This will be discussed in more detail within **Section 2.1.5**.

Flood Prone Zones

Flooding of low-lying areas by stormwater runoff and tidal or wave action takes place at various places throughout Mt. Sinai Harbor. These areas have been mapped on flood insurance maps by the Federal Emergency Management Agency (FEMA). Flood insurance maps indicate specific zones based on the type of flood hazard and flood hazard factors. **Table 2-4**, below, describes the types of flood zones.

**TABLE 2-1
FEMA FLOOD HAZARD AREA DESCRIPTIONS**

FLOOD ZONES	Description of Flooding Conditions
Zone VE	Coastal flood with velocity hazard wave action; base flood elevations determined
Zone X	Area determined to be in 500-year floodplain; area of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 sq. mile; and areas protected by levees from 100-year flood
Zone AE	Base Flood Elevations determined

Source: Federal Emergency Management Agency (FEMA)

The Harbor and its adjacent shoreline are classified as occurring within Zones AE and VE (**Figure 2-6**). Much of this area was also classified as an undeveloped coastal barrier or otherwise protected area in November 1991 (11-16-91). This classification implies that if a structure is constructed after November 16, 1991 and located within this additional coastal barrier area, it may not be entitled to flood insurance protection. The outer half of the Harbor, located directly behind the protective barrier of Cedar Beach, is identified as AE with a minimum base flood elevation of 12 feet. The remainder of the Harbor is less protected and is therefore identified as a coastal flood area with velocity hazard wave action (VE) and a minimum base flood elevation of 16 feet. The low lying shoreline areas surrounding the Harbor (including properties along Harbor Beach Road, Pipe Stave Hollow Road, Shore Road and Crystal Brook Hollow Road) are generally identified as AE with minimum base flood elevations



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ranging from 11 to 15 feet. The remaining upland areas surrounding the Harbor are either outside of the 500-year floodplain or would incur less than 1 foot of flood water.

2.1.3 Groundwater

Groundwater along the north shore of Suffolk County is derived from rainfall or precipitation that seeps into the soil. This water passes through the unsaturated zone to a level below which all soil strata are saturated. This level is referred to as the water table. In general, the groundwater table coincides with sea level on the north shore, and rises in elevation towards the center of Long Island. The high point of the parabola is referred to as the groundwater divide which occurs in the central portion of the County. Differences in groundwater elevation create a hydraulic gradient that causes groundwater to flow in a direction perpendicular to the contours of equal elevation, or generally toward the north shore from the middle of Suffolk County (**Freeze & Cherry, 1979**). Near the shore, water entering the system tends to flow horizontally along a shallow flow system and is discharged from the subsurface into streams or marine surface waters as subsurface outflow. Water that enters the system farther inland generally flows vertically to deeper aquifers before flowing toward the shores (**Krulik, 1986**).

The major water-bearing units beneath the north shore of Suffolk County generally include the Upper Glacial aquifer, the Magothy aquifer, and the Lloyd aquifer (**Jensen & Soren, 1974; Koszalka, 1984**). The upper surface of the water table is found within the deposits of the Upper Glacial formation. Along the north shore, water for drinking supply purposes is derived principally from groundwater contained within the Upper Glacial aquifer.

Groundwater underlying the Mt. Sinai Harbor drainage area is characterized by a shallow, horizontal flow of water northward towards the Long Island Sound and the Harbor itself. The groundwater within the Harbor management area lies within Suffolk County Groundwater Management Zone VIII and is found within the unconsolidated deposits of the Upper Glacial aquifer under unconfined conditions. These unconsolidated soils include coarse sands and gravels with traces of clay. Stream base flow and flow variability are determined by groundwater elevations and surface runoff. In the primarily unconsolidated soils found throughout Long Island, ground water contribution, also known as base flow, has been estimated to constitute 90 to 95 percent of the total stream discharge under non-urbanized conditions (**Reynolds, 1982**). Sandy areas with high ground water tables are more vulnerable to contamination of shallow ground water resources because of the rapid permeability and relatively low organic matter content within the sandy surficial soil, allowing greater infiltration of pollutants from overlying land uses (e.g. fertilizer, pet waste, etc.) (**Fitzpatrick et al., 2001; Saad, 1997**). Because the uplands around Mt. Sinai Harbor contain sandy soils, land uses within the contributing watershed to the Harbor have the potential to impact the quality of the groundwater within the watershed as well as the surface water resources (of the watershed and the Harbor).



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In a study being completed by SCDHS (Suffolk County North Shore Embayments Watershed Management Plan, 2006), the north shore of Suffolk County was divided into fifteen (15) sub-areas based on groundwater flow direction and municipal boundaries. The Mt. Sinai Harbor sub-area boundary was based upon the eventual embayment discharge of groundwater within a 25-year flow period. The extent of the 25-year groundwater contour, or boundary, was determined by Camp Dresser & McKee (**CDM, 2003**) and defined as the line where ground water time-of-travel between recharge into the soil and discharge into the groundwater is 25 years or less. Water recharging south of this boundary is likely to have a longer residence time in the ground. Water recharging north of this line is likely to have a shorter residence time.

Mt. Sinai Harbor's contribution area consists of a 7.28 square mile area around the Harbor, extending from Belle Terre in the west to Miller Place in the east. Groundwater from this area generally flows to the north but there are also easterly and westerly components respectively, along the western and eastern shorelines of Mt. Sinai Harbor. Groundwater from this area eventually discharges to Mt. Sinai Harbor and Long Island Sound. The estimated volume of groundwater discharge per sub-area was calculated using the United States Geological Survey's Long Island Regional Groundwater Flow Model's volume of discharge (**Buxton & Smolensky, 1999**) and the Suffolk County Groundwater Model's relative contributions among sub-areas (**CDM, 2003**). It is estimated that 4.587 million gallons per day (MGD) of groundwater flows from the Mt. Sinai Harbor groundwater contribution area to Mt. Sinai Harbor and Long Island Sound, mostly as groundwater subsurface outflow and to a very small extent as stream flow.

Groundwater Quality

Pollutants such as nitrogen, volatile organic compounds and pesticides are of concern for groundwater quality on Long Island. The coarse-textured soils that underlie Long Island's landscape allow the rapid permeation of water from rainfall and irrigation. As the water recharges into the underlying aquifer, pollutants on the surface of the landscape are carried down into the drinking water supply. Pollutants from residential, agricultural and industrial uses (e.g. sanitary systems, pet wastes, lawn & agricultural fertilizers, manufacturing plants, *etc.*) can leach into the underlying groundwater table. Elevated levels of nitrogen (leached from sanitary systems and fertilizers) in drinking water can affect red blood cells and reduce their ability to carry oxygen to the body. This condition, known as methemoglobinemia or "blue baby syndrome" is especially harmful for infants. Nitrogen-laden groundwater also has serious implications for surface waters, contributing to the eutrophication of coastal waters and low-levels of dissolved oxygen (hypoxia, both of which threaten the health of aquatic organisms.

The Suffolk County Comprehensive Water Resources Management Plan (SCCWRMP) provides information on water quality from 0 to 400 feet below the water table, based upon observation as well as public and private water supply and well monitoring (**SCDHS, 1987**). The majority of the area around Mt. Sinai Harbor has marginal water quality with respect to nitrate-nitrogen with levels of 6-10 mg/l found between 0 and 100 feet below the water table. The area located north and northeast of the Harbor is depicted as having good water quality with respect to nitrate-nitrogen (0-6 mg/l) at between 0 and 100 feet. With regard to organic compounds, water quality



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data indicate that Volatile Organic Compound levels at 0-100 feet below the water table are good (<60% of standard) and do not exceed drinking water standards the majority of the time (**SCCWRMP 1987**).

The Suffolk County Department of Health Services (SCDHS) conducted an eighteen (18) month study of the impact pesticides have had on groundwater quality (**SCDHS, 1999**). The data indicate that no monitoring wells contaminated with pesticides are located within the Mt. Sinai Harbor drainage area.

2.1.4 Surface Waters

Estuaries occur where fresh and saltwater meet. They are highly productive areas that provide habitat for a variety of species and function as nursery areas for commercially important mollusks, finfish and crustaceans. Mt. Sinai Harbor is a natural harbor that was glacially-formed thousands of years ago at the south side of Long Island Sound, an estuary of national significance.

The surface waters of Mt. Sinai Harbor include the estuarine tidal waters that fill the Harbor basin as well as three (3) small freshwater springs that emerge from the base of the hills along the south side of the Harbor. These small springs, or streams, are (from west to east) Crystal Hollow Brook in the southwest portion of the Harbor, Headwater Creek at the junction of West Shore Road and Old Post Road, and an unnamed spring adjacent to the northeast boundary of the former Chandler Estate, now owned by Suffolk County, on the southeast side of the Harbor. Subsurface groundwater outflow is a major source of the fresh water that creates the estuarine conditions in Mt. Sinai Harbor.

Marine water quality within the Harbor is affected by the quality of the fresh waters flowing into it. The State of New York has a classification system for all marine and fresh surface waters within the State. Specific variables (such as color, odor, presence of floating and suspended solids, oil, toxic compounds or other substances) are used to determine the quality of the water and its best usage. Water quality classifications in New York State are based on three indices: the total coliform levels, fecal coliform levels and dissolved oxygen levels. The primary purpose of the classification system is to protect human health. Thus water quality monitoring programs are geared towards identifying those pathogenic bacteria and viruses that might be in the water and by proximity in the fish and shellfish inhabiting those waters. **Table 2-2**, below, describes this classification system.



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**TABLE 2-2
NYSDEC SURFACE WATER QUALITY CLASSIFICATIONS**

Freshwater Classification	Best Usage
AA	Source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. Suitable for fish propagation and survival.
A	Source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. Suitable for fish propagation and survival.
B	Primary and secondary contact recreation and fishing. Suitable for fish propagation and survival.
C	Suitable for fish propagation and survival. Also, for primary and secondary contact recreation, although other factors may limit the use for these purposes.
D	Due to such natural conditions as intermittency of flow, water conditions not being conducive to propagation of game fishery, or unsuitable stream bed conditions, the waters will not support fish propagation. Suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.
Marine Water Classification	Best Usage
SA	Shellfishing for market purposes, primary and secondary contact recreation and fishing. Suitable for fish propagation and survival.
SB	Primary or secondary contact recreation and any fishing. Suitable for fish propagation and survival.
SC	Suitable for fish propagation and survival. Also, suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.
I	Secondary contact recreation and fishing. Suitable for fish propagation and survival.
SD	Suitable for fish survival. This classification may be given to those waters that cannot meet the requirements for primary and secondary contact recreation and fish propagation for reasons of natural or man-made conditions.

Source: 6NYCRR Parts 700-705, Water Quality Regulations for Surface Waters and Groundwaters, effective September 1, 1991.

Note: Examples of *Primary contact recreation* include swimming, diving, and surfing. Examples of *Secondary contact recreation* include fishing and boating.

Freshwater Resources

Freshwater enters Mt. Sinai Harbor through seeps, springs, sub-surface groundwater flow and overland runoff. The seep and groundwater-based sources are diffuse and located all along the bases of the slopes surrounding the Harbor. Groundwater seepage is visible along the shoreline during low tide. The three freshwater springs that empty into Mt. Sinai Harbor are very small, natural springs that are at a constant cold temperature and generally rich in dissolved oxygen. These defined springs are short and shallow, and are relatively constant with very low release of



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water (discharge). Following a heavy rainfall, these springs typically will have higher discharge as the rain is absorbed into the ground. These springs may also experience increased discharge as stormwater runoff collects from developed areas within the Harbor's watershed (e.g. roadways, paved areas, poorly vegetated steep slopes) and is channeled towards the springs.

Marine Resources & Water Quality

In earlier studies, Mt. Sinai was consistently found to be the cleanest of the six north shore harbors within Nassau and Suffolk Counties (**Gross *et al.*, 1972**). However, it was predicted to have degraded resources in the future based on nitrogen inputs and estimates of flushing rates (**Gross *et al.*, 1972**). Recent data collected by the Suffolk County Department of Health Services (SCDHS) illustrates that the Harbor generally has good water quality with low levels of nitrogen and total coliform and consistently high dissolved oxygen. However the levels of total coliform and total nitrogen generally increase toward the south end of the Harbor, where tidal waters have been estimated to have longer residence times and less frequent flushing action (**Gross *et al.*, 1972**).

SCDHS currently has ten water quality sampling stations located throughout Mt. Sinai Harbor as part of their North Shore Embayments Water Quality Monitoring Program (NSEWQMP) (**Figure 2-7**). These sentinel (long-term) monitoring stations are regularly sampled to assess changes in water quality. Monitored parameters include salinity, temperature, dissolved oxygen, nitrate, nitrite, chlorophyll-a, total coliform and fecal coliform bacteria.

The marine waters of Mt. Sinai Harbor are classified by the State of New York as **SA**, which means that the waters generally meet criteria for the safe harvesting of shellfish. For this classification, the most rigorous water quality standards are applied. The best usage for this classification includes fishing, shellfishing, finfish propagation and recreational activities (**Decker, 1998**).

Although the surface waters of Mt. Sinai Harbor are classified as **SA** and deemed to be capable of supporting shellfish resources, this does not mean that the water quality warrants the resource to be safely harvested for human consumption in all portions of the Harbor. As part of their regular monitoring program, SCDHS collects water quality data and monitors the coliform bacteria levels at their ten sampling stations. These data are used in coordination with NYSDEC and Town of Brookhaven monitoring and shellfish management efforts to determine whether shellfish areas are safe for recreational and commercial harvesting.

NYSDEC standards for water quality testing have recently replaced total coliform levels with fecal coliform levels as the defining factor for acceptable water quality in shellfish harvesting areas. In accordance with NYSDEC standards, fecal coliform should be ≤ 14 MPN/100 ml (most probable number per 100 milliliters) with no more than 10% exceeding 49 MPN/100 ml. As a result, more of the Harbor is being closed to shellfishing during summer months. It is not known for sure whether the source of the fecal coliform is human or animal in origin (**Ventalora, 2005**).



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The taking of shellfish is permitted throughout the Harbor except for three areas that have been closed, either seasonally or permanently, pursuant to *Part 41 of Title 6, Rules and Regulations of the State of New York*. These areas are determined by the water quality standards set forth by the NYSDEC and are described below as well illustrated in **Figure 2-7**.

- (1) During the period May 15 through October 31, both dates inclusive, all that area lying northerly of a line extending southerly from utility pole LIL 82 (located near the shoreline at the southeastern side of the entrance to the Harbor, local landmark) to the Town of Brookhaven Channel Marker Black Can Buoy No. 1 and thence continuing southerly to the Town of Brookhaven Channel Marker Red Nun Buoy No. 2 and thence continuing easterly through the Town of Brookhaven Channel Marker Red Nun Buoys Numbers 4, 6, 8, and 10 to the Town of Brookhaven Channel Marker Red Nun Buoy No. 12 and thence continuing northerly to the wooden pole located at the southeastern end of the Town of Brookhaven Boat Launching Ramp (local landmarks).



- (2) All that area and tributaries lying southerly of a line extending westerly from the northwestern end of the bulkhead protecting the shoreline at the Town of Brookhaven access point known locally as Satterly Landing (located on the northern side of Shore Road and immediately westerly of House No. 182, Shore Road, local landmarks) to the northernmost end of the small white building known locally as "Adee's Boathouse," (local landmark) and located on the opposite western shoreline.

- (3) During the period May 1st through October 31st, both dates inclusive, all that area lying southerly of a line extending westerly from utility pole "27 BBL" located near the shoreline at the intersection of Pipe Stave Hollow Road and Enchanted Woods Court, Miller Place, to an orange painted wood marker located near the shoreline below the southeastern corner of the residence at #18 Hillcrest, Mt. Sinai (said residence is a wood-shingled, multi-story structure with a semi-enclosed porch and white painted railing, local landmarks).

The NYSDEC's *Priority Water Problem List (PWP)* identifies those waters of the state "which have one or more of its uses that are not fully supported or are threatened by declining water quality" (NYSDEC, 1993). In 1996, NYSDEC re-titled this listing as the *Priority Waterbodies List (PWL)* (NYSDEC, 1996). The PWL is used as a tool to pinpoint watersheds in need of restoration. Due to the seasonal and permanent prohibition of shellfishing in portions of the



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Harbor, Mt. Sinai Harbor is included on the New York State *Priority Waterbodies List*. Pollutants that hinder the water quality of the Harbor are the result of illegal boat discharges, stormwater runoff and failing septic systems. The NYSDEC (1993) divides the causes or sources of water quality impairment into two major categories:

Point Source

Municipal, industrial and private sewage or discharges either treated or untreated. This also includes combined sewer overflows (CSOs) which by design discharge a mix of municipal sewage and stormwater runoff during significant storm events. [Such systems are not present at Mt. Sinai Harbor.]

Nonpoint Source

Essentially all other sources of pollutants that are not discharged through either a treatment plant effluent, outfall pipe or sewage collection system. This category includes urban/storm runoff from streets, highways, and parking areas, agricultural runoff, runoff from construction sites, leachate from landfills, and hazardous waste disposal sites, chemical and petroleum spills, contaminated sediments, streambank/roadbank erosion, and groundwater contaminated by on-site septic systems. Although storm sewers are now considered "point sources" with respect to regulation by discharge permit, they are included in this report with nonpoint sources since the reduction of pollutants from them will rely on nonpoint source control technology (i.e., best management practices).

Additionally, as a part of the Long Island Sound watershed, Mt. Sinai Harbor is included in the comprehensive strategy to reduce nitrogen loading to Long Island Sound from the north shore of Suffolk County in fulfillment of the Long Island Sound Total Maximum Daily Load (LIS TMDL). The LIS TMDL strives to achieve a 58.5% reduction in anthropogenic sources of nitrogen by 2014. To accomplish this goal, the TMDL mandates the reduction of 205 tons of nitrogen per year from the north shore of Suffolk County, a 39.5% reduction of TMDL-listed anthropogenic nitrogen load from point and nonpoint sources. The Suffolk County North Shore Embayments Watershed Management Plan (NSEWMP) is being prepared for the SCDHS by two firms, Nelson, Pope & Voorhis and EEA, Inc. This Plan contains substantial detailed information on point and nonpoint sources as well as a detailed review of water quality of Mt. Sinai Harbor since 1977. It is expected that the NSEWMP will be released and publicly available in 2006.



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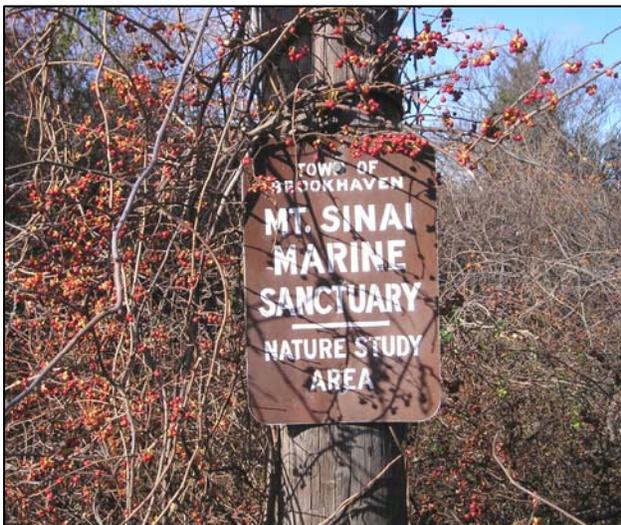
2.1.5 Habitat Inventory

In 1987, Mt. Sinai Harbor was designated as a *Significant Coastal Fish and Wildlife Habitat* by the New York State Department of Environmental Conservation and the Department of State (**Appendix B** contains the State's assessment form). It has also been deemed a *Significant Habitat of Special Emphasis* in the Northeast Coastal Areas Study by the U.S. Fish and Wildlife Service, as well as a Marine Sanctuary by the Town of Brookhaven (**Decker, 1998**).



Mt. Sinai Harbor is considered a significant coastal habitat because:

1. It is a valuable nursery and feeding area (from April-November, generally) for winter flounder, bluefish, blackfish, Atlantic silverside, and menhaden. Many species of waterfowl (e.g. black duck, mallard, American wigeon, scaup, oldsquaw, pintail, bufflehead, mute swan, common loon, etc.) and coastal birds (e.g. herons, egrets, gulls, terns, etc.) utilize this area for feeding and resting, especially during fall and winter months;
2. The habitat supports populations of the endangered piping plover, threatened common and least terns, as well as species of special concern that include the common loon and diamondback terrapin;
3. The marshes and mudflats in this area play an important role as habitats for commercially and recreationally important invertebrates (e.g. shellfish) and fish;
4. It is one of several relatively large, undeveloped, coastal wetland areas on Long Island's north shore that is unique within the State; and
5. The habitat (or its values) is difficult or impossible to replace in kind.



The estuarine waters within Mt. Sinai Harbor have recreational and economic value as well as ecological significance. However, the qualities of these resources have become compromised due to various anthropogenic impacts within the Harbor over the past several decades. Dredging, declining water quality, boating activity, upland development and invasion by non-native species are some of the activities posing major threats to the natural resources within Mt. Sinai Harbor. The resources and their associated pressures are examined in the text below.



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Freshwater Wetlands

The freshwater wetlands resources within Mt. Sinai are limited but significant. They contribute freshwater into the marine system and provide coastal fresh marsh habitat for numerous species of flora and fauna, thereby diversifying the wetland habitats found bordering the primarily tidal resources of the Harbor.

The freshwater springs that feed into the Harbor are classified by the NYSDEC as having **D** quality waters (**TOB, 1990**), as their intermittent flow and small size do not provide suitable water conditions or stream bed for the propagation of fish, but they are suitable for primary and secondary contact recreation (**Table 2-2**).

Of the three freshwater systems within the primary Harbor management area, only one is considered a state-designated freshwater wetland by the NYS Department of Environmental Conservation (NYSDEC): Crystal Brook Hollow. These freshwater wetlands are located in the southwest portion of the Harbor, approximately 200 feet north of the intersection of Crystal Brook Hollow Road and Old Post Road. **Figure 2-7** shows the approximate locations of freshwater wetlands within Mt. Sinai Harbor.

The freshwater wetlands at Crystal Brook Hollow include Crystal Brook (a freshwater spring), a small freshwater pond, and an area of coastal freshwater marsh. The pond was formed in the late 1600's or early 1700's when a low earthen dam was installed across the mouth of Crystal Brook for use with a grist mill that was located at the site (**Decker, 1998**). Though the grist mill had been abandoned decades before, the dam was breached in 1973, likely due to disrepair. The Town of Brookhaven acquired the parcel because of its unique freshwater wetlands in such close proximity to the Harbor (**Decker, 1998**). Remnants of the dam and former grist mill are still evident today.



In 1974, a comprehensive botanical survey of the wetland and upland habitats at Crystal Brook Hollow was conducted by a R.A. Klips. The freshwater marsh below the pond included species such as common reed, broad-leaved cattail, swamp-rose mallow, arrow arum, blue flag, lizard's tail and spike rush before transitioning into a brackish and then saltwater marsh nearer to the Harbor. The species list from the 1974 survey is included in **Appendix C**. Today, the invasive strain of common reed (*Phragmites australis*) dominates the brackish marsh north of Crystal



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Brook Pond and surrounds the earthen dam at the north edge of the pond. This invasive plant is a severe threat to the highly unique and sensitive freshwater marsh located at the south end of the pond. Removal of *Phragmites*, and other appropriate restoration measures, in this portion of the Harbor should be considered of highest priority so as to protect the pristine habitat of the Harbor's only freshwater pond and marsh.

On the east side of the Harbor, the spring that runs parallel between Pipe Stave Hollow Road and the former Chandler Estate also had an earthen check dam installed near its mouth, which led to the formation of an ice pond in the hollow (**Decker, 1998**). The pond was sometimes used as a local ice skating area, but has since become more characteristic of an emergent freshwater reed marsh that is dominated by the invasive common reed, *Phragmites australis*. The remains of an old ice house are still visible on the southwest side of the former pond. An informal botanical survey at the former Chandler Estate was conducted by a SUNY Stony Brook student in 1995 (**Gass, 1995**) and is included in **Appendix C**.

It is readily apparent that the diversity of the unique freshwater wetlands around Mt. Sinai has significantly declined with the rapid colonization of the invasive common reed, *Phragmites australis*. Nearly monotypic stands of *Phragmites* now inhabit the former ice pond at Pipe Stave Hollow and threaten the freshwater marsh at Crystal Brook. The rhizomatous nature of the *Phragmites* is also enabling it to colonize the upper fringes of saltmarsh along the edge of the Harbor. The continued spread of *Phragmites* not only threatens the biodiversity of plant life within the Harbor, but also threatens the use of intertidal marsh areas as essential nursery and feeding grounds for fish and wildlife.

Tidal Wetlands

Mt. Sinai Harbor encompasses approximately 521 acres of underwater land. Intertidal marsh, mudflats, and open water comprise the majority of habitats within the Harbor. The central portions of the Harbor contain grassy intertidal marsh islands that are submerged during extreme high tides and exposed at low tides. A fringe of vegetated intertidal marsh encircles much of the Harbor. These areas of marsh continue to decrease and only an estimated 48.65 acres of the center island marshes remain (**Muschack, 2006**).





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Saltmarsh cordgrass (*Spartina alterniflora*) is the primary plant species growing in the vegetated, intertidal “low” marsh. The higher areas of intertidal marsh lie above mean high water and are subsequently termed “high marsh.” Saltmeadow cordgrass (*Spartina patens*) is the dominant plant species growing within the high marsh, with spikegrass (*Distichlis spicata*), black grass (*Juncus gerardii*), sea lavender (*Limonium carolinianum*) and saltworts (*Salicornia* spp.) as common associates.

The southern portion of the Harbor consists of intertidal mud flats that are exposed during low tides. These flats provide ideal benthic habitat for invertebrates such as shellfish, which are described in more detail below. Subtidal benthic habitats are found in the deeper tidal channels as well as in the deep northern basin of the Harbor which is heavily used for boating.

Large numbers of horseshoe crabs utilize the Harbor as a breeding and nursery area, but their numbers have become jeopardized by their capture and use as bait by fishermen (**Decker, 1998**). Horseshoe crabs (*Limulus polyphemus*) have been in existence for over 350 million years. In Long Island Sound, they are considered to fill a unique ecological role because their eggs are a critical source of food for migratory shorebird populations (**Mattei, 2005**). Horseshoe crabs are harvested by commercial fishermen for use as bait in the eel and conch fisheries. They also are used for biomedical purposes. Two permits are required to be obtained prior to the harvest in New York State: a crab license and a Horseshoe Base Harvester Permit. Currently, the State has set a harvesting limit of 150,000 crabs per year in New York State waters. The limit was recently revised downward from 366,272 per year because of concerns about the population. (**Burgess, 2005**). Enforcement of the harvest quotas is by field officers of the Marine Division. During 2005, the NYSDEC conducted a crab spawning survey in an attempt to obtain a better understanding about the horseshoe crab population.

A list of benthic species commonly found in the Harbor between 1963 and 1966 is included in **Appendix C**.

The deeper, open water habitat within the northern half of Mt. Sinai Harbor is home to many local species of finfish. It is an important nursery area for species such as bluefish, blackfish, Atlantic silversides, Atlantic menhaden, winter flounder and several other species (**Appendix C**). Bluefish, blackfish and winter flounder are fished heavily within the Harbor, and silversides and menhaden are used as bait for these species. A list of finfish and other organisms sampled from the Harbor during 1841-42 by **Ayres (1842-44)** and in 1963-66 by local students and others are compiled in **Appendix C**. It should be noted that no comprehensive surveys of finfish species have been conducted in Mt. Sinai Harbor over the past forty years. It is recommended that a comprehensive finfish survey be conducted to gather information on the populations and species of fish that inhabit or feed in the Harbor.



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Reptiles

Historically, northern diamondback terrapin were quite common in Mt. Sinai Harbor.



Diamondback terrapin are brackish water turtles that utilize estuarine marshes to feed on dead fish, crustaceans, mollusks and some plant material (NYSDOS & USF&WS, 1998). Beaches and dunes with sparse vegetation serve as important nesting areas for the deposition and hatching of northern diamondback terrapin eggs. Females are encountered on land only during a six-week nesting period that peaks from mid-June to mid-July. Presently, the population of diamondback terrapin has rebounded from its depleted state when it was over harvested for use as a delicacy (NYSDOS & USF&WS, 1998). In New York State, terrapin can be harvested under a special permit from

the NYSDEC during the period of August 1st through April 30th. The population is currently considered to be thriving in Mt. Sinai Harbor, as the sandy areas along the Harbor-side of Cedar Beach provide good nesting area (LISS, 2003). A turtle crossing sign indicating their presence is posted along Harbor Beach Road at the eastern end of the Cedar Beach parking area. Specific improvements at the Cedar Beach Marina completed by the Town in 2005, such as the removal of dinghies off the beach and centralized dinghy access, are expected to further enhance terrapin nesting habitat by limiting the trampling of nest sites by humans.

Mt. Sinai Harbor and nearby portions of Long Island Sound may also be important feeding and resting habitat for juvenile Kemp's Ridley sea turtles, especially during the late summer and fall. Long Island is considered to be critical habitat for these sea turtles, which are listed by the federal government and New York State as being an endangered species. Juvenile Kemp's Ridley turtles were seen moving in and out of the Harbor during the 1990s (Decker, 1998).

Shellfish Resources

Mt. Sinai Harbor has considerable shellfish resources: specifically soft clams (*Mya arenaria*), hard clams (*Mercenaria mercenaria*), oysters (*Crassostrea virginica*) and mussels (*Mytilus edulis*, *Modiolus modiolus* and *Geukensia demissa*). These mollusks are found principally in the tidal mudflats at the south part of the Harbor. These mudflats are exposed during low tides. Soft clams are the most abundant shellfish within the Harbor, which is known to be the primary commercial source of this species within the Town of Brookhaven. The extent of recreational and commercial shellfishing is discussed later, in **Section 2.2**.

Bottom habitat is important in determining species distributions. Mussels, oysters and clam larvae need solid objects to attach to for setting and growth. These mollusks are a long-lived, essentially sessile and relatively large species. They are harvested commercially, thus are economically important to New York State. Of these species, the hard clam is the largest commercial industry in terms of dollar value in New York State, followed by the soft clam and then the American oyster (NYSDEC Shellfish Landings Data, 2000-2003).



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Soft clams thrive in intertidal mudflats with soft, fine sediments (**Newell & Hidu, 1986**) whereas hard clams may grow in intertidal as well as shallow subtidal areas. Beds of subtidal eelgrass (*Zostera marina*) used to flourish in Mt. Sinai Harbor. Bay scallops also used to occur within the Harbor but were not able to persist when dredging of the new Harbor entrance caused the tidal levels to drop, exposing the eelgrass to air and subsequently killing the stands of submerged grass which served as the scallop's habitat (**Decker, 1998**).

During the mid-1990's, the soft shell clam population within the Harbor was afflicted with an illness known as neoplasia, which causes the uncontrolled new growth of tissue in shellfish. The extent of individual clams affected in the Harbor was never determined. Research indicates that soft shell clams are most susceptible to this disease in the Northeast, with both male and female clams being affected although it may be more prevalent in females, having direct negative impacts on egg production (**Bower, 2001**). The precise cause of neoplasia in clams is not known, however, researchers suggest that it may be induced by anthropogenic environmental contaminants such as oil spills and herbicides (**Bower, 2001**). One source has even reported a potential connection between the occurrences of gonadal neoplasia during blooms of *Alexandrium* spp., a red tide-causing dinoflagellate (**Landsberg, 1996**). It is intuitive that improving water quality within the Harbor will ultimately help prevent contamination of shellfish resources and possibly prevent diseases.

Birds

Mt. Sinai Harbor is situated within the Atlantic flyway, a major eastern bird migratory corridor. The Harbor's freshwater and upland communities lie within the southern wintering grounds of many northern species of birds. Waterfowl use of the Harbor during winter is influenced, in part, by the extent of ice cover each year. Additionally, the Harbor is used as a feeding area by herons, egrets, shorebirds, gulls, and terns. Several groups of avifauna are coastal migrants, including waterfowl, shorebirds and raptors; while songbirds are found more inland. Migratory avian species are seen in greatest abundance in the Harbor management area from March to May and August to November.

In order to provide a more detailed representation of the avian species that utilize the Harbor, the NYS Breeding Bird Atlas was reviewed to obtain data from the 2000-2005 Breeding Bird Survey for the two (2) census blocks which encompass the Harbor management area (**Appendix D**). The Breeding Bird Atlas surveyed the entire State by 25 km² census blocks over a five year period (2000 to 2004) to determine the bird species which breed within the State. A total of 54 species of waterfowl, shorebirds, raptors and songbirds were identified as confirmed breeders within the Harbor management area. Confirmed breeding bird species include the threatened common tern and least tern as well as the endangered piping plover. Less vulnerable confirmed species of breeding birds in the Harbor management area include the herring gull, mallard, Canada goose, mute swan, black-crowned and yellow-crowned night heron. Probable or possible breeding bird species of special concern include the osprey, Cooper's hawk and horned lark. Though identified as potentially occurring in or within the vicinity of the Harbor



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management area by the NY Natural Heritage Program (**Appendix E**), the Kentucky warbler was not identified as occurring within the census blocks of the Harbor management area.

The open water, marshes, intertidal mudflats and beach shorelines within the Harbor provide vast quantities of essential food (i.e. aquatic plants, benthic invertebrates, crustaceans and small fish) for avifauna. Open water areas are especially utilized by waterfowl during the spring and fall migration periods - (March-May) and (August-November). Many waterfowl species are migratory and arrive in the fall to overwinter in the Harbor. The over-wintering period generally lasts from November through March. In March-May, the migratory waterfowl proceed northward. However, some waterfowl species remain to breed in the project area, and are thus considered year-round residents. These year-round residents include the mallard (*Anas platyrhynchos*) and Canada goose (*Branta canadensis*).

Although listed as a resident of the Harbor by the NYSDOS when referring to the significance of the Harbor's habitats (**Appendix B**), the American black duck was not observed in the most recent Survey conducted from 2000-2004. It was, however, listed as a probable breeder within the Harbor management area during the 1980-1985 Breeding Bird Survey. The American black duck is typically considered an indicator species of habitat health and productivity (**Kessler, 2005**). This is due to the species' historic and continued abundance in Long Island's coastal saltmarshes, whereas the population has experienced declines across the rest of the State since the 1950's due to habitat loss, pollution, hunting pressure, hybridization and acid rain (**Andrle & Carroll, 1988**). The presence of this species within the Harbor should continue to be monitored.

The marsh islands within the Harbor provide significant nesting habitat for gulls, egrets, herons and other wading birds. Many of these islands support large gull, heron and/or egret colonies. Proximity to upland trees for roosting and intertidal mudflats and marshes for feeding render the area desirable habitat for many wading birds (i.e., herons and egrets). Raptors such as the osprey (*Pandion haliaetus*) and other hawks congregate in the Harbor management area in the fall before migrating south.

The sandy beach on the north side of Cedar Beach is documented by the NYSDEC Natural Heritage Program as a nesting area for the piping plover (*Charadrius melodus*), a State- and Federally-listed endangered species (**Appendix E**). Common terns and least terns are also known to utilize sandy shorelines along this spit of land. However, residential developments, frequent disturbances due to recreational use, boating traffic and shoreline hardening limit the usefulness of shorefront areas for these species.



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Loss of Tidal Wetlands

Due to extensive dredging practices between 1910 and 1966 (detailed below in **Section 2.2**), the Harbor's tidal wetlands are estimated to have been diminished (in area) by more than 65 percent since the turn of the 20th century.



The New York State Department of Environmental Conservation has been conducting a tidal wetlands trends analysis to determine the effectiveness of its own Tidal Wetlands Act (*Article 25 Environmental Conservation Law, New York*) on the protection of wetlands within State jurisdiction. Using color infrared aerial photography and geographic information system technology along with field checks by marine biologists, the NYSDEC was able to compare past acreages of vegetated marsh with present acreages. Using this method,

the NYSDEC estimated that between the years 1974 and 1999, the total acreage of marsh in Mt. Sinai Harbor has decreased by approximately 27.3% due to the loss of approximately 46.67 acres of the vegetated center island marshes (**Muschacke, 2006**). This translates to an average loss per year of 1.86 acres of vegetated tidal wetlands. The State determined that the wetlands loss since 1974 was not due to direct filling or dredging, but was more likely attributable to one or more of the following reasons: wave energy and erosion (due to both natural and anthropogenic influences) and rise in sea level. The vegetated fringe marshes due to not appear to be disappearing as quickly as the center island marshes, but are showing signs of peat degradation in which chunks of the peat mass are slumping and breaking away. An update of this wetlands loss analysis is anticipated in 2006 using newly flown aerial photographs taken at low tide (**Muschacke, 2006**).

While the NYSDEC survey did not include a site-specific strategy for Mt. Sinai Harbor, it listed the Harbor as a priority for addressing tidal wetlands loss. The NYSDEC intends to work with its government and non-government partners (e.g. *NYS Department of State, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration/National Marine Fisheries Service, the U.S. Army Corps of Engineers, New York Sea Grant, U.S. Fish and Wildlife Service and National Park Service*) to develop a comprehensive habitat management plan, which includes a tidal wetlands trends assessment and restoration plan. A Draft Habitat Management Plan for Mt. Sinai Harbor was prepared in 1998 by Cynthia Decker of the NYSDEC (**Decker, 1998**). The preliminary recommendations and strategies included within that document were considered during the preparation of the recommendations for this Harbor Management Plan and are reprinted in **Appendix F**.



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Upland Open Space: Barrier Beaches and Woodlands

Two spits of land act as barrier beaches separating Mt. Sinai Harbor from Long Island Sound. These spits are comprised of coarse sand that supports a vegetated community similar to dune habitat. The longer eastern spit, known as Cedar Beach, is largely owned and maintained by the Town of Brookhaven as a recreational area with a Town marina, a Town safety facility with dock, yard and an office, parking areas, beach, nature center and trails. Three other water-dependent facilities (Old Mans Boatyard, Mt. Sinai Yacht Club and Ralph's Fishing Station) are located at the western end of Cedar Beach and primarily support recreational activities. Each of these three facilities leases the land and water they are situated upon from the Town of Brookhaven. The east end of the spit is occupied by residential homes which lie north of Harbor Beach Road and front on Long Island Sound.

In terms of habitats, sandy beach lines the north side and a small complex of vegetated dunes are preserved in the central portion of the spit to the east of the main parking area; trails have been established from the parking area west to the inlet to complement the nature center. This dune habitat contains species such as American beachgrass, bayberry, seaside goldenrod, beach pea and red cedar as well as remnants of the beach plum and prickly pear colonies that once covered the entire spit. The south side of the spit is established in intertidal and high marsh to the east and beach with modified/impacted bog to the west where waterfront uses have altered the former natural habitat. Several of the marine uses have established bulkheads to stabilize the shoreline at an elevation that permits sufficient tidal inundation to support *Spartina alterniflora*. The Cedar Beach Marina shoreline has undergone habitat restoration to establish a sand embankment planted in American beach grass, with *Spartina alterniflora* along the intertidal shoreline.

The western spit is much smaller and is adjacent to the Village of Port Jefferson beach behind the west jetty. This spit is composed primarily of coarse sand and extends from Port Jefferson's East Beach to Mt. Sinai Inlet. The spit is dynamic and experiences sediment depletion due to its downdrift location west of the jetties at the inlet mouth. This is evident in the scouring immediately west of the west breakwater and the loss of beach width north of the East Beach parking lot. The sand deposits immediately west of the inlet lie between bluffs associated with the Harbor Hills community and Long Island Sound to the north and Mt. Sinai Harbor inlet to the east. Both spits have been known to support nesting pairs of piping plover, an endangered shore bird. Common and least terns have also been identified as breeding along this area of shoreline.

The few remaining vacant parcels of land that surround the Harbor are primarily forested with secondary growth forest vegetation. These areas of land include the former Chandler Estate on the east side of the Harbor, the Davis-Were property on Shore Road, the properties owned by the Village of Port Jefferson and Order of Poor Clares on the west side of the Harbor, and various smaller empty lots. These upland areas are dominated by oak and beech trees which provide prime roosting habitat for numerous species of birds as well as small mammals that are relatively tolerant of humans. Deer occupy the Chandler Estate and Cedar Beach in small numbers. A list of vegetation identified or expected to be within these forested upland areas is included in **Appendix C**.



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2.2 Water Uses

This section describes the water uses of the Harbor as well as the structures and activities that take place on the surface of the water and on the underwater land.

2.2.1 Navigation Channels

As seen in **Figure 2-2**, the original mouth of the Harbor was located eastward of the present entrance. The easterly entrance to the Harbor was not stable and records indicate that local residents and maritime merchants worked to keep it open in spite of the contrary efforts of winds and tides. The westerly entrance occurred naturally and eventually it was favored over the eastern entrance, which eventually closed of its own accord. In the mid 1800's a new mouth was dredged on the west side of the Harbor and this entrance was later stabilized with stone jetties in 1927 (**Bone, 1998**).



Today, the mouth of the Harbor is approximately 400 feet wide and is maintained by dredging to a depth of 15 feet below mean low water. Buoys mark the Harbor entrance and the primary navigation channel, which parallels the south side of Cedar Beach. This inner navigation channel is approximately 900 feet wide and ends at the Cedar Beach Marina public boat ramp. Marina boat slips and mooring areas are located to the north east and west of the navigation channel. The Town of Brookhaven's Mooring Map for Mt. Sinai Harbor is shown in **Figure 2-8**. Buoys are maintained by the Town of Brookhaven. No underwater hazards to navigation, such as abandoned barges, cables, or deteriorated pilings are known to occur within the Harbor. However, based on input from members of the Mt. Sinai Harbor Management Committee, navigational aids at the jetties, inlet and channel are in need of improvement. Additionally, the Committee has identified poor navigational lighting at the inlet to the Harbor as well as high-glare lighting along the Cedar Beach Marina parking area and along Shore Road as causing navigational difficulty in the Channel, particularly during dusk and evening hours.

Currently there are no restrictions on the types of boats and personal watercraft allowed within the Harbor (e.g. sailboats, motor boats, kayaks, canoes, jet skis, *etc.*). There is a posted five-mile-per-hour speed limit. However, adherence to this speed limit is not always followed and the use of jet skis above this limit within the Harbor is not uncommon.

The waterways of the State are regulated under both environmental and navigational laws, including Article 15, Section 0505 of the NYS Environmental Conservation Law, the Protection



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of Waters Program. This program regulates the disturbance of the banks and beds of streams and watercourses as well as the excavation/filling of navigable waters and connected wetlands. Brookhaven regulates activities within the waterways under Chapter 81 of the Town Code and the U.S. Army Corps of Engineers regulate activity below spring high water as described in **Section 1.5**. As part of the USACE regulatory process, the NYS Department of State provides decisions on the consistency of regulated activities with coastal policies in the State.

2.2.2 Sand Mining & Dredging Operations

There is an extensive history of sand mining and dredging operations within Mt. Sinai Harbor. While this activity no longer takes place (except for navigational purposes), the sand mining history is included here for two reasons. First, the extent and nature of the mining that took place had an enormous detrimental impact on the Harbor's ecosystem, the ramifications of which still affect the Harbor today. Second, not only were the visual and physical appearances of the Harbor changed; the uses of the Harbor were altered as well.

As seen in **Figure 2-2**, the original mouth of the Harbor was located eastward of the present entrance. As noted earlier, this entrance was not stable and continual dredging was needed to keep it open and navigable. The breach to the west took place naturally during the 1800s and eventually it was favored over the eastern entrance, which was left to close up through natural processes. The west entrance is still dredged today for navigational purposes.

Nearly one hundred years ago, Mt. Sinai Harbor was the scene of massive dredging related activities for non-navigational purposes (**Turney, 2004**). In 1910, a sand and gravel mining company known as the Brookhaven Sand Company purchased land in and around the Harbor for the stated purpose of new residential development. Permission was obtained to dredge the natural channel to allow heavy equipment-laden barges to be brought into the Harbor. In actuality, a diagonal channel was cut across the marsh, resulting in the filling in of the natural channel as well as the loss of habitat. The company subsequently abandoned their dubious plans to construct homes, but continued to mine the Harbor bottom for the sand that underlay the marsh. In 1912, a fire caused the company to cease operations.

Another company, Seaboard Sand and Gravel Corp., purchased the Mt. Sinai Harbor property from the Brookhaven Sand Company. In 1927, this company was granted a permit to dredge within the Harbor provided it also created a new entrance channel and reinforced the channel with stone breakwaters. Dredging activity continued until 1931, during which time Brookhaven Town reaped a payment of a nickel per cubic yard of mined sand. In 1931, attempts to obtain a new permit to expand the dredging operations to other properties under the company's control were denied. The Seaboard Company did not move ahead with any development plans for the waterfront. By 1944, their property holdings were in foreclosure.



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In 1950, the Sound Dredging Company obtained permits to continue the dredging activity within the inlet and along the northwestern portion of the Harbor. Between 1955 and 1966, additional permits were issued for dredging within the northern and western portions of the Harbor. In the mid-1950s, the Town and the U.S. Army Corps of Engineers (COE) gave permission to hydraulically dredge the wetlands within the embayment, in order to create navigational channels and basins for recreational boats; the sand and gravel from these operations was sold. Any unused or unusable material was dumped onto the northern end of the barrier beach, burying red cedar habitat in the process. By 1966, public opinion had rallied against further dredging for non-navigational purposes. After a long and protracted battle, public opinion forced the Town of Brookhaven to stop all but navigational-related dredging within the Harbor. Unfortunately, by then, the cumulative damage wreaked by non-navigational related dredging had resulted in the loss of almost 65 percent of the Harbor's original wetlands and of about 5 million cubic yards of sand and gravel was removed from below the wetlands.

During April-May 1994, approximately 30,000 cubic yards of material were dredged from the Harbor inlet and used for beach nourishment at Cedar Beach. Due to storm activity, another 85,995 cubic yards was removed from the inlet during October 1994 to March 1995.

The most recent maintenance dredging permits from the NYS Department of Environmental Conservation (NYSDEC Permit #1-4722-01305/00005) in April 2005 and the COE in early 2006 allowed the resultant dredged material to be deposited on the west (downdrift) side of the jetties to replenish the sand-starved beach along the Port Jefferson Village shoreline. A separate NYSDEC permit was issued to the Village of Port Jefferson (#1-4722-01008/00005) in early 2005 for the restoration of a dune at East Beach on the west side of the jetty and replacement of an existing stairway over that dune. Village of Port Jefferson's East Beach was starved of sand and the dune was in great need of replenishment. This permit was issued in anticipation of an influx of "new" sand from the anticipated placement of dredged material from the Fall/Winter 2005-6 Harbor inlet dredging project. In March 2006, approximately 45,000 cubic yards of material were dredged from the Mt. Sinai Harbor inlet and deposited on East Beach to begin the much needed dune restoration project.

2.2.3 Recreational & Commercial Fishing

Mt. Sinai Harbor provides a launching point for the recreational and commercial harvesting of marine aquatic species for human consumption and baitfish. Shellfish and finfish are the most commonly harvested species within the Harbor; lobsters and finfish are harvested offshore in Long Island Sound. Each of these aquatic resources is discussed below.

Shellfishing

The Town has invested significant resources to enhance the existing shellfish resource by stocking Mt. Sinai Harbor. Every year from the late 1980's through 2003, the Town seeded the Harbor with hard clams. The Town has raised oysters and hard clams from seed at its grow-out



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facility located at Cedar Beach. All oysters are deposited into Port Jefferson Harbor. Hard clams are deposited into any of the following three areas: Port Jefferson Harbor, Mt. Sinai Harbor, and Moriches Bay. Soft clams are not cultivated in the grow-out facility. The soft shell clam resource is not supplemented by seeding, yet has remained fairly steady in terms of harvested volume.

The Cedar Beach shellfish hatchery is located at the Nature Center and the adjacent park maintenance/public safety facility. The facility is used strictly for growing-out shellfish hatched in other areas. Typically the Town purchases seed clams and oysters (also referred to as “spat”) from hatcheries, preferably based on Long Island (Carrano, 2005). The spat are started at the Nature Center then moved to the park maintenance facility once they reach a determined size range. Although algae had been grown at the facility to feed the shellfish, the mollusks are now fed with Harbor water via a pipe that runs into the Harbor from the park maintenance facility. The facility has the capacity to grow up to four million clams and oysters combined, but due to current levels of staffing and limited funding (approximately \$50,000), this facility is not operating at capacity. In 2003, the facility was growing approximately two million oysters and one million clams (Vecchia, 2005).

Table 2-3 shows the year and estimated number of hard clams released into the Harbor over the past five years, 2000-2005 (Carrano, 2005).

The NYSDEC tracks soft and hard shell clam harvests within Port Jefferson Harbor and Mt. Sinai Harbor, but does not separate harvest data by harbor. According to Tom Carrano of the Town of Brookhaven, the predominant source of harvested soft shell clams recorded by the NYSDEC is presumed to be Mt. Sinai Harbor. This is due to the greater extent of intertidal mud flats within this Harbor compared to Port Jefferson Harbor, which has different estuarine characteristics, experienced more extensive dredging and is subsequently deeper. In contrast, Port Jefferson Harbor is the predominant source of harvested hard shell clams and oysters, as recorded by the NYSDEC.

**TABLE 2-3
HARD CLAM SEEDING IN MT. SINAI HARBOR, 2000-2005**

Year	# of Clams
2000	N/A
2001	N/A
2002	N/A
2003	300,000
2004	0
2005	0
Total	

Source: Town of Brookhaven, Division of Environmental Protection, 2005



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The harvesting of clams occurs year-round in Mt. Sinai Harbor, whereas oysters are harvested during the summer months only. Residents of the Town of Brookhaven are allowed to harvest up to 100 clams or oysters per day without a permit. The Town of Brookhaven issues commercial shellfish permits for the harvesting of oysters and clams above the residential limit of 100 per day. The cost of the permit is \$75. Only Town residents with both Town and State permits are allowed to take shellfish commercially. The Town prohibits recreational and commercial harvesting of shellfish on Sundays during the period of May 1 to October 31. The Sunday restriction on harvesting of shellfish is of longstanding origin as a means of managing a limited resource from overfishing and depletion. The number of permits issued annually has declined since the Town started issuing them in 1997 (Muller, 2005). **Table 2-4** below shows the number of commercial shellfish permits by year in Mt. Sinai Harbor.

Commercial shellfishing within Mt. Sinai Harbor is of regional economic importance, especially for soft clams. **Table 2-5** depicts the volume and the dockside value of soft shell clam harvests in Port Jefferson and Mt. Sinai harbors. In 2003, the reported commercial harvesting of soft clams for the combined Port Jefferson/Mt. Sinai Harbor area totaled 4,795 bushels with a dockside value of \$416,555. The mudflats within Mt. Sinai Harbor are said to be the largest soft shell clam harvest area in the State of New York (NYSDEC Shellfish Landings Data, 2000-2003).

The commercial harvesting of hard clams has fluctuated more widely, but is slightly greater than that of soft clams. The 2003 hard shell clam harvest equaled 5,825 bushels with a dockside value of \$553,370. Port Jefferson Harbor is known to produce the bulk of this harvest. The combined Mt Sinai & Port Jefferson Harbor statistics are shown in **Table 2-6**.

TABLE 2-4
COMMERCIAL SHELLFISH PERMITS IN MT. SINAI HARBOR

Year	# of Permits
1997	296
1998	231
1999	207
2000	150
2001	209
2002	155
2003	116
2004	107
2005	116

TABLE 2-5



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COMMERCIAL SOFT SHELL CLAM HARVESTS, 1991-2003

Year	Bushels	Dollar Value ¹
1991	5,658	283,645
1992	4,621	263,294
1993	3,395	221,601
1994	2,341	169,824
1995	6,484	466,723
1996	7,761	491,871
1997	8,431	431,855
1998	6,782	370,613
1999	5,024	338,277
2000	3,648	289,975
2001	1,949	167,439
2002	4,243	362,290
2003	4,795	416,555
2004	Pending	Pending

Note: Landings include total from Port Jefferson & Mt. Sinai Harbors;

¹ Dockside value, what the harvester receives for product, not indexed for inflation.

TABLE 2-6
COMMERCIAL HARD SHELL CLAM HARVESTS, 1991-2003

Year	Bushels	Dollar Value ¹
1991	3,990	278,195
1992	4,693	331,956
1993	6,686	486,779
1994	3,680	281,402
1995	6,998	634,666
1996	11,248	867,389
1997	11,908	962,659
1998	21,485	1,992,422
1999	29,747	2,149,467
2000	20,296	1,867,575
2001	20,908	1,882,155
2002	6,240	584,448
2003	5,825	553,370
2004	Pending	Pending

Note: Landings include total from Port Jefferson & Mt. Sinai Harbors;

¹ Dockside value, what the harvester receives for product, not indexed for inflation.



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The commercial harvesting of oysters also has fluctuated widely. In 2003, only 797 bushels were harvested with a dockside value of \$57,394. **Table 2-7** depicts the combined oyster harvesting totals for Port Jefferson and Mt. Sinai Harbors for the years 1991-2003, though the bulk of the oysters are known to be harvested from Port Jefferson Harbor.

Contact was made with the NYSDEC Shellfish Permit Division to gather information on the health of the resource and to discuss the reason for the fluctuations and significant decline of harvest. The NYSDEC indicated that the Department is only monitoring water quality at this time (**Ventaloro, 2005**).

TABLE 2-7
COMMERCIAL OYSTER HARVESTS, 1991-2003

Year	Bushels	Dollar Value ¹
1991	33,579	768,237
1992	19,874	473,505
1993	6,265	183,170
1994	2,513	113,648
1995	8,444	299,112
1996	13,694	492,984
1997	19,142	676,047
1998	12,607	528,547
1999	1,423	84,360
2000	2,172	143,837
2001	2,338	152,933
2002	1,115	75,854
2003	797	57,394
2004	Pending	Pending

Note: Landings include total from Port Jefferson & Mt. Sinai Harbors;

¹ Dockside value, what the harvester receives for product, not indexed for inflation.

Finfishing

Although recreational and commercial fishing boats are docked and moored within Mt. Sinai Harbor, there is little commercial fishing that actually takes place within the Harbor proper. In 1998, as many as 30 commercial boats used the basin as a base of operations, including a significant lobster fishing fleet (**Decker, 1998**). Recreational fishing for bait fish and for consumption takes place off of Satterly Landing.

Some of the commercial fishing vessels docked in Mt. Sinai Harbor are lobster boats. Permits from the NYSDEC are required to harvest lobsters commercially; the permit cost is \$250 per year. The NYSDEC does not track the location of the permit holders by port of origin, nor does



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it track where the catch is off-loaded from the boats. Interviews with lobstermen within Mt. Sinai Harbor revealed that the industry has not recovered from the lobster die-off of 1999, which took place immediately in western Long Island Sound immediately west of Mount Sinai Harbor.. The die-off was extensive and affected both juvenile and adult lobsters. As a result, some lobstermen moved eastward and started operating out of Mt. Sinai Harbor. Circa 2001, another mortality event occurred which affected the lobster grounds around Mt. Sinai Harbor and an unspecified distance eastward of the harbor. The cause(s) of this event is (are) different from the 1999 event, and the subject is still being debated, but a new disease was diagnosed during the 2001 event.

The landings for 2002 and 2003 were higher than 1999 through 2001, but still low. Not only has the resource not recovered from the 1999 event, it continues to decline from historical levels.

Horseshoe Crabs

Two permits are required to be obtained prior to the harvesting of horseshoe crabs in New York State: a crab license and a Horseshoe Base Harvester Permit. Currently the State has set a harvesting limit of 150,000 crabs per year in New York State waters. The limit was recently revised downward from 366,272 per year because of concerns about the population (**Burgess, 2005**). Permit holders are subject to caps on the number of crabs that may be harvested in a given year. The cap fluctuates depending on the number of permits that are issued. No more than 68% of the State's quota may be harvested between April 16th and August 31st. Enforcement of the harvest quotas is by field officers of the NYSDEC Marine Division. Unlike that of clams and oysters, the harvesting of horseshoe crabs is not tracked by harbor.

2.2.4 Water Access Points: Docks/Marinas/Moorings/Boat Ramps

There have been no new privately-owned residential docks or bulkheads constructed within Mt. Sinai Harbor since the designation of the Harbor as a marine sanctuary. Only one (1) privately-owned residential bulkhead and associated floating dock currently exists within the Harbor. This privately-owned dock and bulkhead is located on a single-family residential property on the west side of Shore Road, southwest of Satterly Landing. A boat yard was formerly located on this property and the structure predates implementation of Article 25 tidal wetland regulations under the NYS Environmental Conservation Law. All other existing docks are located along the south side of Cedar Beach and occur on Town-owned property that is either open for public use or leased to private boat yards, fishing stations, or yacht clubs. These docks are primarily for recreational boating use. However, Chapter 22-1 of the Town Code prohibits the use of docks, pier, bulkheads or jetties for bathing, swimming or diving when those structures are owned by or under the control of the Town of Brookhaven. In addition to recreational uses, commercial fishermen currently utilize the eastern most floating dock at the Town of Brookhaven's Cedar Beach Marina public boat ramp for the loading and unloading of fishing vessels. The Harbormaster's patrol boat is based out of the dock at the Town park maintenance/public safety facility.



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The majority of bulkheaded shoreline occurs on the southwestern half of Cedar Beach, adjacent to the existing docks and navigation channel. The exceptions are a small area of Town-owned property at Satterly Landing at the southern end of the Harbor, as well as the privately-owned residential bulkhead mentioned above. Satterly Landing contains approximately 170 linear feet of bulkheaded upland which is utilized as a small fishing pier. The portion of Shore Road that abuts the southern shoreline of the Harbor similarly acts as a hardened shoreline and evidence of a former concrete bulkhead along with large amounts of rip rap still exist along this portion of shoreline. The need for rehabilitation of this portion of Shore Road is evident, as the road is currently in danger of eroding. The rehabilitation could incorporate stormwater improvements, creation of safer roadside parking, as well as a Harbor pedestrian trail that would link the various municipally-owned properties along the Harbor's edge.

A major renovation of Cedar Beach Marina is currently underway and includes the widening of the existing boat ramp, installation of an additional floating dock for designation as a commercial-use only loading and off-loading dock, creation of a permanent boat pump-out facility at the Town public safety facility dock, and the proposed extension of several of the piers at Cedar Beach Marina up to the navigation channel so as to create additional boat slips while preventing the need to dredge those boat slips nearest the shoreline. The shallow boat slips along the shoreline will be retrofitted with floating docks to allow for additional dinghy storage.

Chapter 81 (Wetlands and Waterways) of the Town of Brookhaven Code requires the issuance of a Wetlands and Waterways Permit prior to the start of any regulated activities within or adjacent to wetlands. Upon issuance of a wetlands permit, all structures defined in Chapter 85 (Zoning) of the Town Code are required to have a building permit as well as be issued a certificate of occupancy by the Chief Building Inspector. There are no standards regarding bulkheads or retaining walls within the Town Code other than the standard that minimum structural measures should be employed to control shoreline erosion and that bulkheads or retaining walls should be located at or above apparent high water. However, there are several standards for docks. As of 1997, Chapter 81-10 identifies the following standards for residential and commercial docks:

- (1) In no case shall the dock length, excluding that portion landward of the apparent high water mark, be in excess of 150 feet nor exceed 40% of the width of the waterway, whichever is less;
- (2) The width of a catwalk or dock may not exceed eight feet and must be elevated a minimum of four feet above the apparent high water mark, and a minimum of four feet above grade when traversing any tidal or freshwater wetlands as identified by the Division of Environmental Protection of the Town of Brookhaven;
- (3) The width of any single float may not exceed eight feet in width and shall be secured or installed in such a manner that the float shall not rest on the bottom of the water body at any time during the tidal cycle;
- (4) All docks installed to provide fuel to private vessels must also provide pump-out facilities for vessel sanitary waste; and
- (5) The principals or corporate officers of any commercial dock placed above Town-owned underwater land shall either enter into a lease agreement with the Town of



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Brookhaven (if applicable) or provide the Town Clerk, on a yearly basis, an affidavit of indemnity and agreement to provide insurance in such form as required by the Town of Brookhaven Town Attorney or her/his designee.

All commercial docks and residential docks which exceed the standards set forth in § 81-10 of this chapter, the installation of parking areas or drainage areas which would cause disturbance to soils or vegetation within 25 feet of wetlands, as well as structural erosion control measures proposed on Town-owned land are all considered Category A Projects. Category B Projects include in-kind and in-place replacement of bulkheads, bulkhead refacing, new bulkheads not located on Town-owned underwater land, construction of residential docks in conformance to the standards set forth in § 81-10 of this chapter, placement of residential mooring piles not associated with a previously permitted residential dock, and dredging projects. All non-maintenance projects of the Town of Brookhaven are considered Category B projects.

Over the few past decades, the Town of Brookhaven has made a concerted effort to acquire as much shoreline property as possible within the Harbor so that it could provide adequate and appropriately located public access to the Harbor. This was an important move in the designation of the Harbor as a marine sanctuary, as the majority of boat traffic became centered at Cedar Beach, where there was a primary navigation channel with direct access to the mouth of the Harbor. The availability of several public water access points have prevented the need for private water access structures on privately-owned shoreline properties and has enabled the shoreline along the southern half of the Harbor to remain largely natural. The municipally-owned water access points to the Harbor and its resources are described below:

TOWN OF BROOKHAVEN

1. Cedar Beach Marina

Owned by the Town of Brookhaven, this is the most sheltered and largest marina within the Harbor; incorporating 9 acres of upland and 51 acres of underwater land on the south side of Cedar Beach. This marina offers 400 permanent dock slips for recreational and commercial permit holders. Both motor and sailboats are docked and moored here and they range from 14 to 45 feet in length. There are limited provisions for transient boaters. The marina is open on a seasonal basis from May to November. No winter storage is available although commercial boats may apply to use moorings over the winter season. There is a waiting list (of approximately 1,300 people) for access to slips in this marina. The average length of wait





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is 10 to 12 years. There is also a waiting list for mooring permits.

Dinghies are used to access moored boats. All of the dinghies are stored on upland racks adjacent to the parking lot. A large concrete boat ramp permits multiple launchings of up to three boats at a time. There is a fee for use of the ramp (see below). The easternmost floating ramp at this marina is designated for the loading and unloading of commercial fishing vessels. Plans are underway for the expansion of the concrete ramp and subsequent addition of a fourth floating ramp to accommodate personal water craft (e.g. kayaks, etc.).

The parking field encompasses 6.3 acres of the site and has 564 parking spaces, of which 25 are reserved for Town personnel and 80 are designed for a car/truck with a boat trailer. Excluding staff parking, the ratio of parking spaces to boats is slightly more than 0.5 parking spaces per boat.

The following amenities or services are provided at this marina:

- Restrooms, Outdoor showers
- Electricity and water at the dock
- Fixed pump-out facility (beginning in 2006 boating season)
- Boat ramps

The following fees apply at this marina:

- Seasonal Use of Berths: May 1 through November 1
 - Recreational: \$ 50.00 per foot (\$ 650.00 minimum)
 - Commercial: \$ 90.00 per foot
- Seasonal Use of Moorings:
 - Residents: \$ 125.00
 - Non-residents: \$ 250.00
 - Commercial: \$220.00
- Use of ramp:
 - Residents
 - Day permit: \$ 25.00
 - Seasonal permit: \$ 60.00
 - Non-residents
 - Day permit: \$ 55.00
 - Senior Citizens and Handicapped Individuals
 - Seasonal Permit: \$35.00
- Transient Use of Slips:
 - Residents
 - \$ 2.00 per foot (of boat) per day
 - \$ 6.00 per hour or portion thereof
 - \$120.00 per week for boats up to and including 24 feet in length
 - \$180.00 per week for boats over 24 feet in length
 - \$ 5.00 for access to electrical service. (There is no charge for water).





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- Non-Residents
 - \$ 4.00 per foot (of boat) per day
 - \$ 12.00 per hour or any portion thereof
 - \$ 5.00 for access to electrical service. (There is no charge for water).

2. Old Mans Boat Yard

This boatyard and marina encompasses 1.2 acres of upland which are leased from the Town of Brookhaven. Located approximately 1,300 feet (0.3 miles) west of the Cedar Beach Marina parking lot, Old Mans offers 52 permanent dock slips and 120 moorings for recreational motor and sailboats. The boats range from 20 to 40 feet in length, with the average being 30 feet. There are more sailboats than motor boats at a ratio of 64/40. There are no provisions for transient boaters.

The marina is open year round. Winter storage is provided for approximately 60 boats: 54 dry and 4 or 5 in-water or wet. Dinghies are used to access moored boats. Some of the dinghies are stored on the beach along with catamarans.

The following amenities or services are provided at this marina:

- Restrooms
- Electricity and water at the dock
- Portable pump-out facility (for a fee of \$ 25.00)
- Twenty-five ton capacity travel lift
- Limited hull repair services
- Limited engine repair services

3. Mt. Sinai Yacht Club

This private membership club is located on 2.6 acres of land leased from the Town of Brookhaven. Located on the west side of Old Mans Boat Yard, this club offers 99 permanent dock slips and 4 moorings for recreational motor and sailboats. The boats range from 20 to 46 feet in length, with the average being 34 feet. Motor boats outnumber sailboats: with the numbers being roughly 60/40 or 70/30. There are no provisions for transient boaters.

The yacht club was founded in 1964 and is open year round to its members. Winter storage is provided for approximately 72 boats, of which 2 are wet and the rest are dry. The parking area is used for winter storage.

This property is bulkheaded. The dinghies that are used to access moored boats are either tied to the bulkhead or to the adjacent floating docks.

The parking field is designed to accommodate 200 vehicles. Excluding staff parking, the ratio of parking spaces to boats is approximately two spaces per boat.

The following amenities or services are provided at this yacht club:

- Club house
- Restrooms, Showers



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- Electricity and water at the dock
- Ice
- Portable pump-out facility
- Hoist for installing and removing masts

Membership is required for access to this facility. There is a waiting list for entry into the Club. Since the site has no ramp or travel lift, members' boats must be hauled from Cedar Beach Marina, Old Mans Boat Yard or elsewhere. The club also provides programs for its membership including junior sailing programs, annual club cruises, and other social events.

4. Ralph's Fishing Station

This marina and boat yard encompasses 1.3 acres of upland leased from the Town of Brookhaven. Located on the west side of the Mt. Sinai Yacht Club, Ralph's offers 53 permanent slips and 400 moorings for recreational motor boats. Five of the moorings are reserved for transient boaters. The boats range from 18 to 36 feet in length. The boat yard is open year round. Winter storage is provided for approximately 63 boats: of which about 60 are dry and 2 or 3 are wet.



Most of the boatyard property is bulkheaded, and access to moored boats is either by dinghy or a launch service provided by the yard. Most of the dinghies are stored at the floating docks but some are stored on the beach.

The parking field is designed to accommodate 70 vehicles. Excluding staff parking, the ratio of parking spaces to boats is about one space for every six boats.

The following amenities or services are provided at this marina:

- Restrooms
- Electricity and water at the dock
- Ice for commercial fishermen
- Fuel
- Limited hull repair services & limited (gasoline) engine repair services
- Ships' supplies and accessories
- Snack bar
- Launch service
- Designated holding tanks for disposal of up to 10 gallons of residentially-generated used motor oil



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5. Cedar Beach Park

This park is owned by the Town of Brookhaven and is located primarily on the north side of Cedar Beach, roughly parallel to the four facilities described above. The park offers approximately 4,450 linear feet (0.84 miles) of beach front along Long Island Sound and approximately 3,500 linear feet (0.66 miles) of frontage on Mt. Sinai Harbor. Encompassing approximately 64 acres of land (including Cedar Beach Marina), this park was renovated during 2005 to better serve the public. In addition to the 564 parking spaces for Cedar Beach Marina, the park provides 417 parking spaces near the gated and manned entrance on the north side of Harbor Beach Road and 117 spaces at the west end of Harbor Beach Road near the fishing pier. During the summer season, May through September, there is a parking fee of \$15.00 per day.



Amenities at this park include the following:

- Restrooms
- Showers
- Snack bar
- Nature Walk (Handicap accessible) and park benches
- Fishing Pier
- Handball courts
- Nature Center with educational exhibits, school programs and spat tanks associated with the Cedar Beach shellfish grow-out facility
- Public Safety facility (a.k.a. Park Maintenance Building) with offices for the Bay Constable, shellfish grow-out facility and, in 2006, a permanent boat pump-out station





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6. Shore Road Boat Ramp

Located at the north side of Shore Road where it turns to the east, approximately 0.4 miles northeast of its intersection with Old Post Road. This boat ramp is located on Town of Brookhaven property that lies between the right of way of Shore Road and the Harbor itself. The ramp appears to have been constructed of asphalt that has since crumbled. The access is of limited functionality due to various constraints, access is possible only during high tides, and the ramp serves only small boats. No



permits or fees apply. Users of this ramp park on unpaved land along south side of Shore Road, to the east of the launch site. The present design of the ramp is not particularly safe or attractive.

7. Satterly Landing

This 0.67 acre park is owned by the Town of Brookhaven. Before its acquisition by the Town, this site was known as Ralph's Fishing Station, which was relocated to its current location at Cedar Beach in 1975. The park contains a small parking area, a bicycle rack, bench, kayak/canoe launching area, and a small fishing pier (approximately 144 linear feet).



VILLAGE OF PORT JEFFERSON

1. Village Beach

This sound-front beach is located west of the west jetty to the mouth of Mt. Sinai Harbor.. A small portion of the property immediately west of the jetty is within Brookhaven Town's jurisdiction. The beach is accessed by Village Beach Road off of Winston Drive. An asphalt parking lot for approximately 103 cars is located





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directly adjacent to the concrete rip rap and staircases that front the beach. This beach has limited width as a result of wave erosion and lack of sand replenishment due to the interruption of the natural sand transport from east to west caused by the presence of Mt. Sinai Harbor inlet. A volley-ball court at the eastern edge of the parking lot lies adjacent to dune formations. Two gazebos with benches are located in this park; one adjacent to the volley ball court, the other at the entrance to the park. The gazebo at the park entrance also contains picnic tables and bicycle racks.

2. Crystal Brook Road Cul-de-sac

This cul-de-sac directly abuts a mooring field on the west side of the Harbor. Motor and sailboats are moored in areas of deeper water near the cul-de-sac terminus of Crystal Brook Road. Access to these boats is by dinghy or by launch service from Ralph's Fishing Station. It appears that some dinghies and small sail boats including catamarans are being stored on the upland and beach adjacent to the cul-de-sac on its south and east edges. Parking is limited to fifteen minute intervals and to Port Jefferson Village residents.



However, there is parking within walking distance on the portion of Crystal Brook Road that bisects the Village-owned Property, which remains accessible during daytime hours.

Summary of Water Access Points and Permits

The Town of Brookhaven owns and leases all water access within Mt. Sinai Harbor. Although the Village of Port Jefferson's easternmost boundary is slightly within the Harbor for a distance of approximately 200 feet, it has no jurisdiction over Harbor bottom. The Harbor bottom in this area near the inlet is maintained as a mooring area, and is leased by the Town of Brookhaven to Ralph's Fishing Station (**Figures 2-8 & 9**).

The Town's facility at Cedar Beach Marina provides substantial boat ramp access for commercial and recreational boaters. Availability of ice is limited but obtainable. Transient dockage is available on a limited basis. While limited storage for dinghies is available, no "high and dry" boat rack storage is present for recreational boats at the Town-owned marina. Such facilities are common for calling ahead and launching of boats on an as needed basis, where depth of water and forklift capabilities are available. Ralph's Fishing Station is the only marina that provides dry rack storage.

The placement of moorings within the Harbor has evolved over time. The first time a mooring plan or grid was used was 1988. Since that time, the management of moorings has evolved in response to the situation (**Reeser, 2005**). [All mooring and transient dockage permits in Mt.



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Sinai Harbor are issued through the Department of Parks & Recreation. The Department of Environmental Protection issues all mooring permits within Town of Brookhaven with the exception of Mt. Sinai Harbor].

The Town of Brookhaven’s current mooring map (**Figure 2-8**) illustrates a total of five mooring areas within the northern half of Mt. Sinai Harbor. Two vendors, Ralph’s Fishing Station and Old Mans Boatyard have contracts with The Town of Brookhaven to install, maintain and pull-out moorings within the Harbor. The type of mooring tackle that may be used is specified by the Town. Ralph’s Fishing Station and Old Mans Boatyard each manage two of the mooring areas within the Harbor; the Town manages the fifth mooring area. Ralph’s Fishing Station and Old Mans Boatyard are free to site and install the moorings within their assigned sections. Mooring Area #5 is an open mooring area where individuals can place their own moorings, although the mooring tackle and its placement must meet Bay Constable approval in advance. Old Mans Boatyard and Ralph’s Fishing Station also place some overflow moorings in Mooring Area #5. Ralph’s Fishing Station provides the only launch service to moorings within the Harbor.

Cumulatively, the Town, the two private marinas, the private yacht club and the public marina situated on the south side of Cedar Beach provide access to a total of 604 dock slips and 525 moorings. Mt. Sinai Harbor appears to be operating near or at capacity with regard to dock and mooring areas. **Figure 2-9** illustrates the existing public access points, mooring fields and docks referred to in the above text.

2.2.5 Hunting

Waterfowl hunting in Mt. Sinai Harbor is a traditional sport that was part of the social fabric of the community in past decades. This seasonal sport occurs in the late fall and winter months. Hunting was not considered to be a problem in the Harbor until about 1990-2000 when increased residential development brought in people who were fearful of the sport (**Kessler, 2005**). As a compromise between local sportsmen and residents, in 2003, the southeastern portion of the Harbor, near the Water’s Edge subdivision, was made off-limits to duck hunters. The Town has posted signs (i.e. along Pipe Stave Hollow Road at the northwest corner of the Chandler Estate) prohibiting waterfowl hunting inside this “line” and NYSDEC agreed to enforce this “line,” although it is unclear as to whether this “line” was ever actually mapped. The following are the types of species hunted and their corresponding season in the Harbor estuary.

<u>Species Hunted</u>	<u>Season</u>
Ducks, Coots, Mergansers	Nov. 22-Dec. 1, Dec. 8-Jan. 26
Sea Ducks	Oct. 12-Jan. 26
Pintails	Nov. 22-Dec. 1, Dec. 8-Dec. 27
Snow Geese	Oct. 5-Oct 23, Nov. 22-Dec. 1, Dec. 23-Mar. 10
Brant	Nov. 22-Dec. 1, Dec. 8-Jan. 26



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2.3 Land Use & Zoning

2.3.1 Land Uses and Zoning in the Harbor Management Area

Land Use

As illustrated in **Figure 2-10**, the dominant land use within the Harbor management area is public recreational open space which comprises 61 percent of the Harbor management area. Much of this land is used for access to the waterfront (e.g. marinas, boat ramps) or is preserved as woodland. The largest block of recreational land is located on the western two-thirds of Cedar Beach. Some of this land is leased for commercial use through the Town of Brookhaven. Similarly, the underwater land within the Harbor is publicly owned by the Trustees of Brookhaven and some of this underwater land in the vicinity of Cedar Beach is also leased for commercial use. The following types of recreational and educational facilities are located in this area:

- Town beach that provides for recreational swimming and surf-casting on Long Island Sound
- Town Marina with public boat slips, dinghy racks and access to moorings
- Parking areas
- Restroom facilities
- The Mt. Sinai Nature Center
- Shellfish Grow-out facility
- A private yacht club (Mt. Sinai Yacht Club & Marina)
- Two privately owned boatyards
- Park Maintenance Building and Harbormaster's Office

Privately-owned residential property is the next dominant land use within the Harbor management area, with medium density residential comprising 18 percent of the area and low density residential another 17 percent (**Suffolk County Department of Planning, 2005**). Most of the residences are year-round, but some may be seasonal, particularly those located on Harbor Beach Road. Approximately 85 private residences are located at or near the shoreline of the Harbor. Residential lot sizes within the Harbor management area range in size from 0.29 acres to 88.39 acres (Crystal Brook Park Association). Residential development surrounds the entire Harbor except for the western two thirds of Cedar Beach. There is little developable vacant land left (approximately 4 percent of the Harbor management area). Some developed properties appear to have been redeveloped, and this may be a trend for the future. All residential properties within the Harbor management area are serviced by public water.

There are currently no industrial facilities on Mt. Sinai Harbor. Marinas and boat yards cater primarily to the recreational trade and only secondarily to the commercial fishing trade. The only documented evidence of industrial operations directly within or adjacent to the Harbor is related to the sand mining and dredging activities described earlier in **Section 2.2.2**. The only commercial activities on the Harbor were those related to fishing, small family farms and summer resorts featuring access to the water (e.g. former Davis Island). **Table 2-8** below identifies the amount of land within the Harbor management area dedicated to the above-



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mentioned land use categories based upon tax parcel level information from the **Suffolk County Department of Planning (2005)**.

With the clear exception of the marinas, boatyards and yacht club in the Cedar Beach area and the public open space directly abutting the Harbor, most of the land uses around the harbor are water-enhanced, not water-dependent uses. The water-dependent uses are almost all related to providing some form of public access to the waterfront. These are discussed in **Section 2.2.4, Water Access Points: Docks/Marinas/Moorings/Boat Ramps**.

TABLE 2-8
LAND USE WITHIN THE HARBOR MANAGEMENT AREA

Land Use	Acreage	Percent
Recreational Open Space	179.68	61.0%
Medium Density Residential	52.10	17.7%
Low Density Residential	51.68	17.5%
Vacant	9.99	3.4%
Transportation	1.07	0.4%
Institutional	0.18	0.1%
TOTAL¹	294.70	100%

Source: Suffolk County Department of Planning Tax Parcel Information, 2005

¹ Does not include underwater land within the Harbor or tax parcels identified as surface water.

The scenic quality of the Harbor includes sweeping vistas of boats at anchor and wooded hillsides, tidal marsh and open water. The terrain around the Harbor gives it a secluded feel, because there is little hint of the extent of development that exists around and beyond it. This scenic quality was the reason for Mt. Sinai Harbor's attraction to New York City dwellers from the mid- to late-1800s and mid-1900s when massive dredging for sand and gravel decimated the marsh landscape. The development of most of the farmland in Mt. Sinai and Miller Place and the gradual suburbanization of the countryside has resulted in a shift from resort to year round residential use. As development progressed, the clear cutting of land for farms and pasture stopped and the land around the Harbor became reforested. The primary detractor of the scenic quality of the Harbor is clear cutting of native vegetation for the purpose of obtaining a view of the Harbor. Other aesthetic detractors include the presence of overhead wires lining Harbor Beach Road, Pipe Stave Hollow Road and Shore Road, as well as the increasing presence and spread of invasive common reed, *Phragmites australis*, along the shoreline.

Zoning

Zoning within the primary Harbor management area, the Harbor and its immediate upland is identified in **Figure 2-11**. The majority of the area is zoned for residential use with one exception - a portion of Village-owned land along the west side of the Harbor is zoned for marina-waterfront use. The zoning is described by governmental jurisdiction.



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Village of Port Jefferson:

Most of the western harbor-front land lies within the Village. Much of it is zoned *R-A1, Single Family Residence*. This district permits single-family detached dwellings, not to exceed one dwelling on each lot. Churches, including convents and parish houses, and other places of worship, also are permitted. The parsonage and rectory shall conform to the requirements for a single-family dwelling. Schools, both public and private, are permitted. Village parks, playgrounds and related recreational facilities and buildings, are permitted. Additional conditional uses may be permitted upon approval by the Planning Board, including private country clubs and golf courses. The following bulk regulations are required for new development in the *R-A1* zoning district within the Village of Port Jefferson:

- Minimum lot size: 30,000 square feet (0.69 acres)
- Minimum lot depth and width: 150 feet
- Minimum front yard: 50 feet
- Minimum side yards: 60 feet total
- Minimum rear yard: 60 feet
- Maximum building height: 35 feet

There are currently 66 residential tax parcels in the Mt. Sinai Harbor management area that are located within the Village of Port Jefferson. These parcels range in size from 0.68 to 2.04 acres with an average parcel size of 42,762 square feet (0.98 acres). Only two (2) of those parcels are currently subdividable (greater than 60,000 square feet). These two lots are located at the northern terminus of Doyle Street, abutting Village-owned land and the Long Island Sound.

There are three parcels within the Harbor management area that are zoned MW, Marina-Waterfront District. This district lies east of Winston Drive where it joins with Crystal Brook Hollow Road. This district permits the following uses:

- Public and private marinas and docking facilities;
- A ferry terminal serving passenger cars and light trucks not exceeding five tons;
- Municipal and private parking facilities;
- Municipal facility structures;
- Boat launching facilities;
- Commercial charter and fishing boats; and
- Private yacht clubs.

Conditional uses permitted upon approval by the Planning Board include:

- Eating and drinking establishment provided no other such establishment lies within a distance of 400 feet and no residential district lies within 200 feet of the property line;
- Retail sales, including marine-related items such as boats, boating and fishing equipment and boat provisions, as well as antiques, gifts, arts and crafts;



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- Boat service repair and storage facilities; and
- Boatels and motels in accordance with certain regulations, one of which is a minimum lot area of 70,000 square feet.

Also permitted are customary accessory uses to the permitted uses, including off-street parking.

Buildings constructed within the MW district may not be made of unprotected metal construction or pre-fabricated metal buildings. Additional restrictions include a ban on truck loading and shipment between the hours of 6 p.m. and 7. a.m., and the storage of sand, gravel and stone whether in the open or in structures, may not exceed twenty feet in height nor cover more than fifty percent of the lot. The following bulk regulations are required for new development in *MW* zoning districts within the Village of Port Jefferson:

- Maximum height: 30 feet above original grade line except for storage of materials which may not exceed 20 feet in height.

Two of the three parcels are owned by the Village of Port Jefferson, one of the parcels is a recharge basin at the southeast corner of Winston Drive and Crystal Brook Hollow Road (1.1 acres in size) and the other is a designated open space parcel located between Winston Drive and Crystal Brook Hollow Road (1.8 acres in size).

The third parcel (tax parcel # 0206-6-2-4), located on the south side of Crystal Brook Road, is approximately 19.1 acres in size. It is classified as *surface water land use* by the Suffolk County Planning Department (2005). Most of this property is comprised of underwater land with an undetermined amount of the upland area located along the seaward side of Crystal Brook Road, which is zoned Marine Waterfront. The Village of Port Jefferson owns approximately 6.3 acres of upland and marshland within this 19.1 acre parcel.

Town of Brookhaven:

The land around the south, east and north borders of the Harbor is zoned for residential uses. All of the land is zoned *A Residence 1 District (A-1)*, except for the former Chandler Estate, which is zoned *A Residence 2 District (A-2)*. The two districts are described below.

The *A Residence 1 District (A-1)* permits single-family detached dwellings, churches and other places of worship, public and private schools, and open farming, as well as additional conditional uses permitted upon approval by the Planning Board. The following bulk regulations are required for new development in *A-1* zoning districts within the Town of Brookhaven:

- Minimum lot size: 40,000 square feet (0.92 acres)
- Minimum front yard: 50 feet
- Minimum side yards: 25 feet (75 feet total)
- Minimum rear yard: 60 feet



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The *A Residence 2 District (A-2)* permits one family detached dwellings, churches and other places of worship, public and private schools, open farming, and convents and monasteries, as well as additional conditional uses permitted upon approval by the Planning Board. The following bulk regulations are required for new development in A-2 zoning districts within the Town of Brookhaven:

- Minimum lot area: 80,000 square feet (1.84 acres)
- Minimum front yard: 60 feet
- Minimum side yard: 18 feet (40 feet total)
- Minimum rear yard: 50 feet

The zoning establishes the ultimate land use pattern, particularly for new uses and re-use of existing sites within the Harbor management area. **Table 2-9** below identifies the amount of land within the Harbor management area dedicated to the above-mentioned zoning districts.

TABLE 2-9
ZONING WITHIN THE HARBOR MANAGEMENT AREA

Jurisdictional Entity	Zoning Designation	Acreage	Percent
Town of Brookhaven	Single Family Residential District (A-1)	140.30	47.6
Town of Brookhaven	Single Family Residential District (A-2)	68.39	23.2
Village of Port Jefferson	Single Family Residential District (R-A1)	82.61	28.0
Village of Port Jefferson	Marina Waterfront District (MW)	3.41	1.2
	TOTAL¹	294.70	100.0

Source: Suffolk County Department of Planning Tax Parcel Information, 2005

¹ Does not include underwater land within the Harbor or tax parcels identified as surface water.

2.3.2 Public Access, Recreation & Open Space

Government entities own nearly 200 acres of land within the Mt. Sinai Harbor management area (**Table 2-10**). **Figure 2-12** identifies the publicly owned and vacant lands within the Harbor management area and drainage area. Much of this land is deemed as open space that is available for recreational use by the public (**Figure 2-10**) and is described in more detail in **Section 2.2.3**. Most but not all of the publicly-owned land within the Harbor management area is under the control of the Town of Brookhaven (approximately 62.5 percent). Additionally, the Town has jurisdiction over all of the underwater lands associated with the Harbor and the roadway network within the Town. The government-owned areas are briefly described below:



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TABLE 2-10
GOVERNMENT-OWNED LAND WITHIN THE HARBOR MANAGEMENT AREA

Land Owner	Acreage	Percent of Total
Town of Brookhaven	124.36	62.5 %
Village of Port Jefferson	28.07	14.1 %
Suffolk County	40.53	20.4 %
New York State	6.06	3.0 %
TOTAL	199.02	100.0 %

The Town of Brookhaven owns approximately 82.07 acres of upland and marshland located throughout Cedar Beach and along the seaward side of Pipe Stave Hollow at the northeast corner of the Harbor. Cedar Beach provides substantial public recreation opportunities, including a public boat ramp, mooring areas, boat slips, fishing pier, nature center, trail network, as well as a bathing beach on the Long Island Sound (see **Section 2.2.4**, Water Access Points: Docks/Marinas/Moorings/Boat Ramps). The Town also owns approximately 3.85 acres of land between Shore Road and Seaview Lane at the southeast corner of the Harbor (formerly known as the Davis-Were property), 12.94 acres of land at the south end of the Harbor (including Satterly Landing), 12.95 acres at the southwest corner of the Harbor (Crystal Brook Hollow), and 5.03 acres of land just west of the inlet to the Harbor. Additionally, the Town of Brookhaven owns two parcels of land, totaling 2.86 acres, within the Mt. Sinai Harbor drainage area located east and south of the Harbor that are utilized as recharge basins.

The Village of Port Jefferson owns approximately 28.07 acres of upland and marsh land within the Harbor management area at the west side of the Harbor, and an additional 5.64 acres of upland within the drainage area (west of Crystal Brook Hollow Road).

Suffolk County (with some funding assistance from both the Town and State) recently acquired a 40.53 acre parcel of land, formerly known as the Chandler Estate, located at the northwest corner of Pipe Stave Hollow Road and North Country Road. This primarily forested property overlooks the Harbor and is intended for public use as a passive recreational area for activities such as hiking and wildlife viewing. The County will be conducting a full ecological inventory of the Estate during 2006. The County also may retain qualified personnel from the State University of New York at Stony Brook conduct an archaeological study on the property. A former “ice house” is located at the northern end of the property, situated alongside an historic trail within the Chandler Estate. Such trails were common on this property and around the Harbor for the purpose of transporting ice and cordwood from source to market or transportation access points for schooners that anchored at the Harbor’s southern edge. A meeting with Suffolk County Parks Department in November 2005 revealed that the County would be amenable to partnering with other agencies, including the Town of Brookhaven, in order to secure State funding for habitat restoration or passive recreational improvements to the property (**Gibbons, 2005**).



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The New York State Department of Environmental Conservation manages 6.06 acres of State-owned tidal marsh and upland at the south end of the Harbor between Old Post Road and Shore Road. The area is deemed as a NYS Conservation Area and abuts Town-owned land as well as vacant land.

The Draft Open Space Plan for New York State's Region 1 includes recommendations for acquisition of upland and freshwater wetland sites adjacent to tidal wetlands around the Harbor. Recommendations for specific parcel acquisition from the Draft NYS Open Space Plan (NYSDEC, 2005), the Town of Brookhaven Community Preservation Project Plan (TOB, 2003) and Nelson, Pope & Voorhis are discussed in **Section 2.3.4** and **5.0** of this document and illustrated in **Figure 5-1**.

2.3.3 Archaeology, Maritime History & Cultural Resources

The NYS Office of Parks, Recreation and Historic Preservation resource map identifies the lands within and surrounding the Harbor (including the Harbor study and drainage area) as being archaeologically sensitive. Although no properties were identified as being of National or State Listed historic significance, the Harbor management area includes locally significant archaeological and historical features (**Figure 2-13**). There is no record of historic underwater sites or structures, such as shipwrecks or dry docks.

The first residents of the Town of Brookhaven were Algonkian-speaking Native Americans, the Setalcots (or Setaukets), and the Unkechaugs. The boundaries of the Town of Brookhaven coincide almost exactly with the tribal lands of these two groups of people.

Before the Europeans arrived, Mt. Sinai Harbor was known to the native Americans as *Nonowantuck*: a name thought to mean "stream that dries up." Archaeological data suggests thousands of years of intensive inhabitation by Native Americans before English settlers arrived on the north shore of the Town in 1655. Six men from the Town of Southold which had been founded in 1640, purchased eight square miles stretching from Stony Brook to Port Jefferson in exchange for tools, wampum, lead, powder and "1 pair of children's stockings." The first settlers came from eastern Long Island and New England.

The Town was originally called Setaulcott, and the first settlement was named after the native Americans it was purchased from: Setauket. More land purchases followed over the years. In 1666, after Long Island became a part of the Colony of New York, Governor Richard Nicholl granted a Patent, which fixed the name of Brookhaven, confirmed title to the lands already purchased, and allowed for additional purchases. In 1686, Governor Thomas Dongan issued a Patent that granted extensive powers to the Town, and established a representative form of government.



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Early Brookhaven residents were engaged in farming, fishing and whaling. In the 1800s, the shipbuilding, and cordwood industries became important as well. Many of the early residents held important roles in the formation of the state and the nation.

After settlement by the English, the area around the Harbor was referred to as “Old Man’s.” There are various theories as to the origin of this name, but in any case, it was not until 1840 that the community obtained its own post office and its current name: Mt. Sinai. The Harbor itself played a role in the American Revolution in an event referred to as “Tallmadge’s Raid”. In 1780, Major Benjamin Tallmadge and his men rowed from Connecticut to Mt. Sinai Harbor, trekked south to Mastic, captured 50 British prisoners and returned to Connecticut without losing a single member of the band. The Tallmadge Trail retraces the steps of this daring and successful raid, originating at the east side of Mt. Sinai Harbor and traversing southward along Pipe Stave Hollow, past North Country Road, towards Coram (**Figure 2-13**).

The local economy in the early days of Mt. Sinai’s history was based on the natural resources of the Harbor and its watershed. Shellfish and finfish were harvested. Cordwood was gathered and shipped out by boat. A mill was built in 1719 by Moses Burnett on the shores of Crystal Brook. (The brook today is a remnant of its former self.) There are records of church services being held at a Presbyterian “preaching station” as early as 1720. In 1760 a Presbyterian church was organized. It was followed by the First Congregational Church of Brookhaven in 1789 and a Methodist Episcopal Church in 1843.

Much of the principal, and most heavily traveled, road network probably dates back to the earliest days of settlement. Their location and names reflect their origins and destinations. Pipe Stave Hollow Road ran down to the Harbor by a place where pipe (or barrel) staves were made. The Old Post Road was the mail route to Port Jefferson (then known as Drowned Meadow) as early as the 1730s. Rocky Hill Road has examples of glacial erratic boulders. Shore Road runs along the shoreline at the southeastern corner of the Harbor. Crystal Brook Hollow Road runs along the western side of the Harbor, where Crystal Brook emerges into the Harbor.

Shipbuilding was common in the mid-1800s. There was a shipbuilding yard located on the Harbor, although its precise location could not be determined during the research for this report. However, the unstable mouth and the relatively shallow depth of the Harbor limited the size of the ships that could be built. Eventually the yard was moved to the naturally deeper harbor of Port Jefferson. Riggers, sail makers, ship carpenters and others continued to live in Mt Sinai and work Port Jefferson.

School districts had been laid out by the Town trustees in 1813 and by 1820 the residents of Mt. Sinai obtained a permit to build its first school. Mt. Sinai was a thriving community of 280 souls by 1874 and had all the attributes of a typical small American town: schools, a post office, shops, churches, windmills and industries typical of the time. In 1891, Dr. Jerome Walker established a small community (known as the Crystal Brook Park Association) on the east side of Crystal Brook. The pond within the Crystal Brook Park may have been created by damming the brook



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for purposes of driving a mill, possibly the one built earlier, in 1719. And, in 1903, a volunteer bucket brigade was formed to act as a fire department.

The quiet Harbor with ready access to Long Island Sound also was a pleasant place to vacation. Even as early as the 1800's, people from New York City and Connecticut came to the Harbor to escape the congestion of city neighborhoods during summer months. The historical record notes that small farms, summer rentals and resorts were part of the Harbor community until recent years. The extensive dredging of the Harbor through the 1970s probably resulted in the most dramatic changes within the Harbor itself. During the 1990s, the last of the farms south of the Harbor was sold for residential and recreational uses.

Over time the shipyards and various water-related industries gave way to residential, recreational and tourist uses of both the Harbor and its surrounding upland. That transition is more or less complete (an estimated 58% of the upland in the Harbor management area around the Harbor is developed, most of it in residential uses). Some of the housing stock is being replaced or expanded. The remaining vacant land will either be preserved as open space or developed with residential uses.) But with this transition has come the challenge of balancing the needs and interests of local residents and visitors with the environmental limitations of the Harbor. Today, Mt. Sinai Harbor still retains much of its original appeal. The Harbor is still the source of clams and fish. It is still visited by migrating birds and used for duck hunting. However, as development continues and usage of the Harbor increases, the potential for serious damage to the Harbor's natural environmental resources will increase. The focus of this Management Plan is to protect Mt. Sinai Harbor's unique environmental, historical, archaeological and cultural resources and to enhance or improve them where possible.

The Town of Brookhaven has begun installing a series of interpretative signs around the Harbor to illustrate the historic and ecologic resources that surround them. The visually appealing signs were developed by the NYS Department of State, Division of Coastal Resources for Mt. Sinai Harbor and mounted by the Town in strategic locations. As of December 2005, a total of four interpretative signs were observed on Harbor Beach Road near the Nature Center and at the northeast corner of Mt. Sinai Harbor, on Shore Road at the southeast corner of the Harbor, and at Satterly Landing. The signs were themed: "A Place in History," "Brookhaven Nature Center," "Wetland Species of Mt. Sinai Harbor," and "Habitats of Mt. Sinai Harbor."





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2.3.4 Development Potential

Only 9.99 acres (3.4 percent) of the Harbor management area remains as undeveloped land in private ownership. **Table 2-11** below identifies individual developable tax parcels within the Harbor management area.

Five (5) parcels in the Village of Port Jefferson and the Harbor management area are currently identified as vacant land with R-A1 zoning, greater than 30,000 square feet and therefore able to be developed for single-family residential use. An additional two (2) parcels in the Town of Brookhaven are zoned A-1 residential, greater than 40,000 square feet, and potentially developable within the Harbor management area.

TABLE 2-11
DEVELOPABLE VACANT LAND WITHIN THE HARBOR MANAGEMENT AREA

Jurisdictional Entity	Tax Map #	Acreage	Zoning District
Village of Port Jefferson	0206-4-1-7	1.324	R-A1
Village of Port Jefferson	0206-6-2-1	0.836	R-A1
Village of Port Jefferson	0206-4-1-25	0.806	R-A1
Village of Port Jefferson	0206-4-2-12	1.068	R-A1
Village of Port Jefferson	0206-4-1-15	1.234	R-A1
Town of Brookhaven	0200-67-4-6	3.377	A-1
Town of Brookhaven	0200-46-3-28.7	1.345	A-1
TOTAL		9.990	

Within the Harbor's drainage area, there are approximately 63.5 acres of vacant land, of which there are only fifteen (15) developable lots zoned A-1 residential in the Town of Brookhaven (greater than 40,000 square feet and 0.92 acres) and four (4) lots zoned R-A1 residential in the Village of Port Jefferson (greater than 30,000 square feet and 0.69 acres). The remaining lots are not considered to be buildable due to size constraints, municipal ownership, etc. **Table 2-12** below identifies individual developable tax parcels within the drainage area.

TABLE 2-12
DEVELOPABLE VACANT LAND WITHIN THE HARBOR DRAINAGE AREA

Jurisdictional Entity	Tax Map #	Acreage	Zoning District
Village of Port Jefferson	0206-4-1-7	1.324	R-A1
Village of Port Jefferson	0206-4-1-15	1.234	R-A1
Village of Port Jefferson	0206-4-2-12	1.068	R-A1
Village of Port Jefferson	0206-6-2-1	0.836	R-A1
Town of Brookhaven	0200- 9-1-5.3	2.077	A-1
Town of Brookhaven	0200-25-2-5.6	1.446	A-1



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Town of Brookhaven	0200-25-2-11.3	1.153	A-1
Town of Brookhaven	0200-25-2-11.4	1.297	A-1
Town of Brookhaven	0200-26-2-46	0.916	A-1
Town of Brookhaven	0200-46-1-7.2	0.949	A-1
Town of Brookhaven	0200-46-1-8.2	1.005	A-1
Town of Brookhaven	0200-46-1-11	1.835	A-1
Town of Brookhaven	0200-46-1-15.14	1.083	A-1
Town of Brookhaven	0200-67-2-7.1	1.054	A-1
Town of Brookhaven	0200-67-2-13	23.175	A-1
Town of Brookhaven	0200-67-4-6	3.377	A-1
Town of Brookhaven	0200-68-3-2.8	1.017	A-1
Town of Brookhaven	0200-68-3-4.1	1.196	A-1
Town of Brookhaven	0200-68-4-2	1.565	A-1
	TOTAL	47.607	

Existing Acquisition Lists

The continued status of the Harbor as a marine sanctuary is dependent upon its ability to provide adequate water quality and habitat to valuable marine wildlife. As a function of the Mt. Sinai Harbor Management Plan, we have compiled information concerning parcels previously recommended for acquisition as well as additional vacant parcels that may be beneficial for protection of the Harbor’s ecological and historical resources. The Town of Brookhaven’s Final Community Preservation Project (CPP) Plan (**TOB, 2003**), adopted by Town of Brookhaven Town Board on September 2, 2003, had identified numerous parcels of land surrounding the Harbor for potential acquisition. The Draft New York State Open Space Plan (**NYSDEC, 2005**) additionally identified three (3) parcels of land located within the Harbor’s drainage area for recommended acquisition based upon their size and location near tracts of existing open space greater than ten acres in size. The Open Space Plan’s recommendations were also identified as preservation priorities by The Nature Conservancy. All of these previously identified parcels recommended for acquisition are contained in **Table 2-14** and illustrated in **Figure 5-1**.

There are approximately 10 acres of potentially developable parcels within the Mt. Sinai Harbor management area (**Table 2-12**). Within the Harbor’s drainage area, there are approximately 48 acres of potentially developable parcels (**Table 2-13**). Some of these parcels of land warrant greater consideration for acquisition than others based upon size, proximity to the Harbor, and on site ecological conditions. Of these vacant lands, three (3) parcels greater than 0.80 acres in size and currently undeveloped have been identified that should also be considered as priorities for acquisition based upon their location, connectivity to existing publicly-owned land and environmental sensitivity. These additional parcels are included within **Table 5-1** and **Figure 5-1** in the Recommendations section of this report.



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**TABLE 2-13
INVENTORY OF FORMERLY PROPOSED ACQUISITION PARCELS IN THE
MT. SINAI HARBOR DRAINAGE AREA**

ID	Acres	Dist.	Sec.	Blk.	Lot	Vacant Parcels	Source	Drainage Area
1	0.29	200	8	1	24.000	Yes	TOB Final Community Preservation Project Plan, 2003	N
2	0.38	200	8	1	41.000	-	TOB Final Community Preservation Project Plan, 2003	N
3	2.08	200	9	1	5.003	Yes	TOB Final Community Preservation Project Plan, 2003	L
4	0.59	200	25	1	1.000	Yes	TOB Final Community Preservation Project Plan, 2003	K
5	1.30	200	25	2	11.004	Yes	TOB Final Community Preservation Project Plan, 2003	J
6	1.15	200	25	2	11.003	Yes	TOB Final Community Preservation Project Plan, 2003	J
7	1.45	200	25	2	5.006	Yes	TOB Final Community Preservation Project Plan, 2003	J
8	0.63	200	25	3	1.001	-	TOB Final Community Preservation Project Plan, 2003	I
9	0.25	200	25	3	2.000	Yes	TOB Final Community Preservation Project Plan, 2003	I
10	0.25	200	25	3	3.000	Yes	TOB Final Community Preservation Project Plan, 2003	I
11	0.25	200	25	3	4.000	Yes	TOB Final Community Preservation Project Plan, 2003	I
12	0.11	200	46	4	1.000	Yes	TOB Final Community Preservation Project Plan, 2003	I
14	1.43	200	68	3	6.006	-	TOB Final Community Preservation Project Plan, 2003	G
15	3.82	200	68	3	6.002	-	TOB Final Community Preservation Project Plan, 2003	G
16	1.33	200	68	1	13.005	-	TOB Final Community Preservation Project Plan, 2003	E
17	1.07	200	68	1	13.006	-	TOB Final Community Preservation Project Plan, 2003	E
18	0.69	200	68	1	11.000	Yes	TOB Final Community Preservation Project Plan, 2003	E
19	0.95	200	46	1	7.002	Yes	TOB Final Community Preservation Project Plan, 2003	G
20	2.03	200	46	1	15.008	-	TOB Final Community Preservation Project Plan, 2003	F
21	1.01	200	46	1	8.002	Yes	TOB Final Community Preservation Project Plan, 2003	G
22	1.83	200	46	1	11.000	Yes	TOB Final Community Preservation Project Plan, 2003	G



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ID	Acres	Dist.	Sec.	Blk.	Lot	Vacant Parcels	Source	Drainage Area
23	1.09	200	46	1	10.000	-	TOB Final Community Preservation Project Plan, 2003	G
24	1.12	200	45	1	15.017	-	TOB Final Community Preservation Project Plan, 2003	F
25	1.06	200	46	1	15.012	-	TOB Final Community Preservation Project Plan, 2003	F
26	1.08	200	46	1	15.014	Yes	TOB Final Community Preservation Project Plan, 2003	F
27	3.38	200	67	4	6.000	Yes	TOB Final Community Preservation Project Plan, 2003	E
28	0.40	200	67	4	7.001	Yes	TOB Final Community Preservation Project Plan, 2003	E
29	1.05	200	67	2	7.001	Yes	TOB Final Community Preservation Project Plan, 2003	E
30	0.59	200	66	1	1.014	-	TOB Final Community Preservation Project Plan, 2003	S
31	0.12	200	66	1	1.002	-	TOB Final Community Preservation Project Plan, 2003	S
32	0.20	200	66	1	1.003	-	TOB Final Community Preservation Project Plan, 2003	T
33	0.12	200	66	1	1.004	-	TOB Final Community Preservation Project Plan, 2003	T
34	0.09	200	66	1	1.005	-	TOB Final Community Preservation Project Plan, 2003	T
35	0.07	200	66	1	1.006	-	TOB Final Community Preservation Project Plan, 2003	T
36	23.18	200	67	2	13.000	Yes	Draft NYS Open Space Conservation Plan, 2005	E
37	20.96	200	67	1	7.001	-	Draft NYS Open Space Conservation Plan, 2005	E
38	5.05	200	93	1	6.001	-	Draft NYS Open Space Conservation Plan, 2005	E



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2.3.5 Restoration & Recreation Opportunities

Figure 2-9 identifies existing public access boat ramps, mooring fields, trails and scenic vistas within the Harbor management area. These access points are used extensively. As development increases, the pressure on these access points is likely to increase and this carries with it the potential for environmental degradation. Creating additional opportunities can mitigate these impacts.

Opportunities for recreation as well as habitat restoration are identified below:

- The dunes and beach at the Village of Port Jefferson beach located to the west of the Mt. Sinai Harbor inlet is in need of sand replenishment and restoration in order to maintain the dune and beach structures;
- The marsh habitat surrounding the eastern and southern shoreline abutting the Crystal Brook Road cul-de-sac has been eroded, but could be restored if boat and foot traffic were confined to channelized access points from the road; and
- Since much of the Harbor's shoreline is bordered by narrow roads that offer scenic vistas but which preclude safe walking trails, creating off-road trails would enhance the walking experience and improve public safety on the roads.

The following opportunities would facilitate public access to and usage of the Harbor's scenic vistas:

- Boardwalk/trail extending from Cedar Beach Marina to the Chandler Estate on Pipe Stave Hollow Road;
- Collaborative effort with Suffolk County to develop a nature trail and interpretative signage on the Chandler Estate referring to cultural heritage of the area as well as adjacent wetland restoration efforts;
- Restoration of former seawall and installation of a boardwalk/trail along Shore Road westward up to the existing small boat ramp on Shore Road;
- Creation of a trail linkage from the Shore Road boat ramp to Satterly Landing; and
- Creation of an interpretative walking trail from the former grist mill at Crystal Brook Pond to the cul-de-sac at the eastern terminus of Crystal Brook Road in the Village of Port Jefferson.

The following opportunities exist to improve water quality within the Harbor:

- Reduce input of pollution into the waters from boat bilges and sanitation systems;
- Eliminate of overland runoff and sediment transport directly into the Harbor;
- Use of environmentally-friendly chemicals in and around marinas;
- Decrease input of direct discharges of stormwater runoff into the Harbor from surrounding roads;
- Increased filtering of stormwater runoff through natural vegetative means using new or existing swales and other retention facilities; and
- Mitigate nitrate sources such as standard septic systems located within the primary management area by modifying their design.

The following are opportunities to protect remaining vegetated intertidal marsh and wildlife



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nesting areas:

- Install a small boat ramp and small boat storage area at the Crystal Brook Road cul-de-sac so as to facilitate the restoration of the marsh;
- Reduce wave action within the Harbor, particularly south of the main navigation channel by placing speed restrictions on motorized boating and proper enforcement;
- Improve drainage facilities at shorefront road and parking lots to eliminate overland runoff and road salt from directly entering the Harbor;
- Eradicate or reduce extent of invasive vegetation (e.g. *Phragmites australis*), particularly at the north end of Crystal Brook Pond and the Chandler Estate;
- Prohibit storage of small sail and dinghies/kayak/canoes on the shoreline;
- Provide upland storage racks and areas for small sail and dinghies/kayak/canoes along with easy to use access ramps;
- Increase intertidal planting areas along Town marina and active recreational facilities; and
- Manage diverse habitat opportunities within government-owned lands such as Cedar Beach Park and the Chandler Estate.

The following opportunities exist to enhance existing shellfish resources:

- Expand the existing Town Shellfish Hatchery Program using volunteers as instrumental operators and environmental stewards.

These opportunities take into account several improvements that were installed during 2005 as part of a State supported one million dollar restoration of Cedar Beach and Marina. These include:

- Removal of stormwater outfall pipes;
- Regrading of the parking lot on south side of Harbor Beach Road and installation of numerous leaching pools to capture stormwater runoff;
- Planting of shoreline stabilizing shrubs and beachgrass between the parking lot and Harbor;
- Removal of dinghies from the shoreline and installation of dinghy racks;
- Establishment of walking trail opportunities between marina and parking lot;
- Creation of employee parking area using pervious surface in proximity to tower; and
- Installation of new bathroom facilities at the Marina.

The following improvements are slated for implementation during 2006/2007:

- Expansion of existing boat ramp to allow eastern most floating ramp to be used solely for loading/unloading of commercial boats;
- Installation of an additional floating ramp for launching of personal watercraft such as small sailboats, jet skis, kayaks, and dinghies;
- Extension of existing piers to create additional boat slips on the seaward end of the piers while eliminating the need to dredge the Harbor bottom;



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- Installation of a permanent pump-out dock and expanded pumpout facility opportunities;
- Extension of existing pier at the Town Facility Dock just west of Cedar Beach Marina;
- Installation of intertidal marsh plantings along shoreline in front of Cedar Beach Marina; and
- Reconfiguration of the parking lot to create more parking spaces and improved parking for boat trailers.

The recommendations in **Section 5.0** address the potential opportunities identified here.

2.4 Pollution Sources & Stormwater

2.4.1 Pollution Sources

There are several sources of surface water pollution to marine and fresh waters. These are typically characterized as being point or nonpoint sources, depending on their origin.

Point sources

One known potential source of point source pollution to the Harbor is untreated human wastes from marine sanitation devices (MSD) discharged directly to the water from boat holding tanks. To counter this potential threat, the Town of Brookhaven has provided a pump-out boat to service boats moored and docked within Mt. Sinai Harbor since 1997. Additionally, the following three facilities offer access to separate land-based pump-out facilities to their customers: Mt. Sinai Yacht Club, Cedar Beach Marina, and Old Mans Boatyard.

Another known potential source of point pollution is boat building, repair and servicing activities conducted at the water's edge. Unless properly managed, these activities can be a source of metals such as copper, chromium, and zinc; of organic compounds such as polynuclear aromatic hydrocarbons, oil, and gasoline; and of organometals, such as tributyltin from bottom paint. The existing boatyards and marinas around the Harbor have measures in place to prevent point source contamination of the Harbor, including fuel storage

Discussions with environmental experts affiliated with Brookhaven and the NYSDEC revealed that because of the above-noted mitigative actions, point sources are not considered a significant source of contamination to the surface waters of Mt. Sinai Harbor.

Nonpoint sources

Stormwater runoff has been extensively documented as a major source of pollutants. Rainwater and snowmelt run off streets, lawns, construction and industrial sites and pick up pollutants such as: pesticides, herbicides, metals, hydrocarbons, sediment, fertilizer nutrients (from lawns) and pet wastes as stormwater makes its way towards surface water bodies. Runoff (and the pollutants it carries) can be controlled and filtered through proper management. Because stormwater is conveyed throughout a watershed and picks up an array of pollutants before entering the Harbor, it is considered a nonpoint source of pollution. Stormwater runoff has been



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identified by the Environmental Protection Agency as the most common cause of water pollution, and is considered to be a major source of surface water quality degradation within Mt. Sinai Harbor. Degraded surface water quality has detrimental environmental, aesthetic and economic effects on commercial and recreational resources. As discussed in **Section 2.2.4**, the southern portion of the Harbor has seasonal and permanent restrictions on the harvesting of shellfish due to high levels of pollutants, including coliform bacteria, found in the water. As part of this HMP, an expanded study of the extent and nature of point and nonpoint sources of pollution to the Harbor was conducted. Using the data in the *Mt. Sinai Harbor Stormwater Improvement Project* report (**Nelson, Pope & Voorhis, 2003**) as a baseline, the drainage area was expanded to include the Harbor's entire watershed boundary, including upgradient land contributing areas within the Village of Port Jefferson, on the north and west side of the Harbor (see **Figure 1-2**).

The analyses included the following components:

- Delineation of entire stormwater contributing area surrounding Mt. Sinai Harbor;
- Upland inventory of the stormwater runoff pick-up and containment structures within the contributing area; and
- Shoreline inventory to determine stormwater discharge points, areas subject to erosion, and other land use/environmental factors regarding stormwater or environmental inputs to the estuary.

The key inventory and analysis findings of the *Mt. Sinai Harbor Stormwater Improvement Project* and updated field investigations are presented here. The study helped identify key actions that should be undertaken as part of a targeted impact mitigation strategy to improve the water quality of Mt. Sinai Harbor. These site specific recommendations and implementation actions are listed in **Sections 5.0** and **6.0** of this report. The complete text of the *Mt. Sinai Harbor Stormwater Improvement Project* is incorporated into this Harbor Management Plan by reference and cited in **Section 7.0**.

2.4.2 Stormwater Drainage Inventory

The watershed boundary was established by evaluating the topography and drainage features of in the immediate vicinity of the Harbor, and identifying the upland areas that contribute stormwater runoff to the Harbor. An evaluation of the topography and physical features of the entire contributing watershed upland surrounding the Harbor, resulted in the delineation of twenty (20) sub-watershed boundaries (i.e. discrete drainage areas), each with distinct characteristics. These sub-watersheds range in size from two to ninety-seven acres in area. The sub-watershed areas, identified as "A" through "T" (see **Figure 2-14**) were inventoried to identify existing drainage features, which include open drainage swales, outfalls, catch basins, leaching pools, retention basins and overland flow/direct discharge points (such as direct road runoff or boat ramps). Additionally, general direction and rate of overland flow of stormwater



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was identified throughout the drainage contributing area during field investigations, which were completed during several occasions at the time of wet weather events. Each identified structure and/or environmental feature encountered during the survey was inspected for the presence of any ancillary piping, stormwater diversion elements, or evidence of direct discharge to the Harbor as well as operational efficiency, condition and effectiveness. All stormwater features, discharge points and roadway topographic profiles were plotted on a master drainage area map and sequentially numbered by drainage area. **Figure 2-14** summarizes the findings of the drainage inventory. The inventory of the stormwater retention facilities within the drainage area revealed a total of two (2) outfalls, 122 roadway catch basins, 38 leaching pools, eight (8) shoreline discharge areas, and three (3) recharge basins. A description of the sub-watershed areas from the *MSH Stormwater Improvement Project and Report Update* is summarized below:

Drainage Areas A–D and T

Drainage Areas A through D and T are located in the southwestern portion of the Harbor, at a small inlet/wetland area located between Crystal Brook Hollow Road and Farm Road and extends laterally to the east where these drainage areas terminate at the western boundary of another inlet/wetland area located between Old Post Road and Shore Road. Drainage Area T includes a small portion along the west side of Crystal Brook Hollow Road, which includes several residential housing lots with frontage on Roslyn Court and steep rear yards that drain towards Crystal Brook Hollow Road.

The land use in this area is generally residential and much of this area is developed as a single private residential community known as Crystal Park Estates. Much of this community was developed prior to 1900 and therefore no modern drainage infrastructure was established in this location. However, in comparison to a similarly sized modern development, the community maintains significantly narrower roadways, more natural cover and much less impervious surface which ultimately results in a considerable reduction in the volume of stormwater runoff generated than might normally be expected. Generally, runoff generated in this area drains along narrow, uncurbed roadways and discharges to several natural depressions and swales located throughout the community.

The community rests atop a steep bluff along the southern shoreline of Mt. Sinai Harbor and the topographic profile for most of the community generally trends towards the southwest from the top of the bluff away from Mt. Sinai Harbor. Two of the roadways within the community (Edgewood Road and Long Hollow Road) are located within former glacial outwash channels, which slope in a northeasterly direction and divert stormwater towards Mt. Sinai Harbor. However, surface runoff in this region of the Harbor management area is retained within several natural topographic depressions and drainage channels and it is expected that the majority of stormwater does not result in runoff to Mt. Sinai Harbor. Natural areas which slope towards the Harbor are located along the steep bluff and within the natural drainage swales and do not appear to have been eroded or allow runoff to reach the harbor unfiltered. Overall, due to the predominant topographic trend of this region to the southwest and the significant natural area within the site which is capable of accommodating stormwater generated in the area, an insignificant amount of overland runoff is expected to reach Mt. Sinai Harbor. As a result



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stormwater generated in this portion of the Harbor management area is not expected to have a significant adverse impact to the wetlands or surface waters of Mt. Sinai Harbor.

Drainage Areas E & M

Drainage Area E is the southernmost drainage area that is generally defined by the development patterns of Old Post Road and Shore Road West. This Drainage Area extends laterally beginning at the intersection of Edgewood Road and Old Post Road and extends approximately 0.8 miles to the east where it ends at the western edge of the recharge basin Anchor Lane. Stormwater runoff generated within Drainage Area E is generally directed from topographic high elevations of the region located to the east and west where it is deposited within roadside storm drains located along Shore Road. Any overflow from these storm drains may continue down slope along Shore Road where it is diverted to additional storm drains or may be deposited within a NYSDEC managed wetland area located immediately to the north of the intersection created by Old Post Road and Shore Road.



Stormwater from the western portion of Drainage Area E flows down Old Post Road where it is collected at the bottom of the hill in two storm drains located at the intersection of Old Post Road and Shore Road. It appears that some runoff from the steep hill on Old Post Road may flow to a wetland area at the base of the hill, but the majority of runoff continues down the road toward the intersection at Shore Road.

Drainage Area M is a small residential subdivision within a loop drive located in the southeastern corner of Drainage Area E. Stormwater drainage is diverted generally to the northwest where it is collected by a series of catch basins and eventually diverted to a recharge basin located southwest of the subdivision for direct subsurface recharge. No evidence of stormwater drainage problems were observed in this area and the existing drainage system appears to be functioning adequately.

Drainage Area F

Drainage Area F is located southeast of Shore Road and extends to the southeast, to the northwest corner of Anchor Lane and to the eastern property lines of residences located on the east side of the eastern extension of Eagles Landing. The northern boundary of Drainage Area F is bounded by Shore Road. There are no





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stormwater retention structures located along this Shore Road and surface runoff flows directly into Mt. Sinai Harbor. In addition, it should be noted that this section of roadway is often flooded during high tides and extreme weather events further enhancing the exchange of stormwater runoff with surface waters within the Harbor. This is a critical area for stormwater management improvements.

The eastern portion of Drainage Area F rests atop a topographic high point and runoff from this area is diverted to the west along the residential streets of Eagles Landing, Harbor Court and Fishermans Cove. Several storm drains were observed along Eagles Landing and Harbor Court which intercept stormwater runoff prior to reaching Shore Road. However, due to the steep grade along these roadways it appears that the drainage basins do not effectively capture all runoff particularly during extreme events. As a result, a significant amount of the overflow reaches Shore Road where it is directed to the north or overruns Shore Road as well as adjacent residential properties located to the west and is deposited in the adjacent NYSDEC managed wetland area.

One catch basin is located on the northwestern corner of Shore Road and provides for some retention of stormwater generated along impervious surfaces in this area. However, this catch basin does not have sufficient capacity or operational efficiency to retain stormwater flow directed to this retention structure. As a result this area is prone to significant flooding during storm events and any overspill runoff is transferred directly into the Harbor via a former boat ramp located adjacent to the catch basin. Consequently, it is believed that this area has high potential for nonpoint source pollution and is considered a high priority area for stormwater improvement projects.

The northern region of Drainage Area F lies directly adjacent to Mt. Sinai Harbor and is bounded by the east-west running portion of Shore Road. There are no stormwater retention facilities along this section of roadway and runoff is deposited directly into the Harbor. Field observations revealed that sections of this roadway are often submerged during high tides and extreme storm events which further promote the discharge of stormwater runoff into the Harbor.

Drainage Area G

Inspection of Drainage Area G did not reveal the presence of any natural or man-made stormwater retention facilities. Stormwater drainage in this area flows down slope in a northerly direction along the roadways of Rocky Hill Road and Shore Road where, during heavier rainfall events, it is deposited into a low lying wetland area located east of the northeastern corner of Shore Road and Mt. Sinai Harbor.





Drainage Area H

Drainage Area H generally slopes from south to north in the southern portion and east to west along the eastern section of Drainage Area H. In the southern section of this Drainage Area roadway runoff is directed from the northeast and west along North Country Road to its intersection with Shore Road where it is collected by four interconnected catch basins. Any runoff not intercepted by these retention structures continues west along Shore Road where it is either deposited in a single roadside catch basin opposite Shore Roads intersection with Seaview Lane or continues along Shore Road.



The northwestern section of Drainage Area H is occupied by a residential subdivision to which primary access is provided by Seaview Lane. Runoff along Seaview Lane as well as three intersecting cul-de-sacs to the north flows towards the northwest and southwest, respectively. Runoff from the cul-de-sacs flows toward Seaview Lane where it is intercepted by several roadside catch basins or continues to the northwest where it is eventually diverted to the southwestern end of Waters Edge Lane. Stormwater deposited in this area is collected by two roadside catch basins or allowed to discharge through wetlands located immediately to the north and eventually into Mt. Sinai Harbor. The wetlands area noted likely acts as a natural biofilter mechanism that allows for the natural recharge of stormwater runoff and promotes the removal of sediment prior to reaching the Harbor.

Drainage Area I

Drainage Area I is divided by Pipe Stave Hollow Road; with development to the north and a large drainage swale located on publicly owned vacant land to the south. Stormwater runoff within Drainage Area I is generally diverted from east to west and then directed north toward Mt. Sinai Harbor. Stormwater generated along George Street and Levon Lane in the eastern elevated region of this area is eventually diverted to Pipe Stave Hollow Road which slopes in a northwesterly direction towards Mt. Sinai Harbor. At the corner of George Street and Pipe Stave Hollow Road, there are a total of four roadside catch basins which intercept overland runoff that flows from the south and west. Any stormwater not collected by these retaining structures continues along the down slope of Pipe Stave Hollow Road or is





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deposited in a drainage swale located immediately to the southwest and runs the entire length of Pipe Stave Hollow Road north of North Country Road. This drainage swale also receives a significant amount of stormwater runoff from North Country Road to the south and eventually terminates at a small wetland cove which adjoins Mt. Sinai Harbor Court. Stormwater is diverted to these structures through a several roadside catch basins located along these roadways and recharged to the subsurface. None of this runoff received by these basins is deposited into Mt. Sinai Harbor.

There is virtually no further subdivision potential in this area. In addition, all structures are located in high elevation areas. The drainage swale which is within a Suffolk County preserve (SC-1) is located along Pipe Stave Hollow Road acts as a primary stormwater retention and diversion facility within Area I and the region. Visual evidence including erosion and sediment accumulation indicates that during storm events a significant amount of runoff is deposited into and transferred along this drainage feature. It is presumed that most of the water runoff naturally discharges to the underlying water table; however, discharge into the northwestern end of the swale is likely transferred to the Harbor.

Drainage Areas J and K

Drainage Areas J and K are located along Pipe Stave Hollow Road in the eastern shoreline of the Harbor. Field observations revealed that sections of this roadway are often submerged during high tides and extreme storm events which further promote the discharge of stormwater runoff into the Harbor. The land on the east side of Pipe Stave Hollow Road is entirely developed with residential uses. Stormwater runoff within Drainage Areas J and K flows west along the steeply sloped residential roadways including Enchanted Woods Court and Cedar Drive where it is diverted directly into Mt. Sinai Harbor along a stretch of the shoreline.

The only stormwater retention structures in this area are located at the intersection of Pipe Stave Hollow Road and Enchanted Woods Court and along Cedar Drive opposite Oaks Drive. The catch basins located at the intersection of Enchanted Woods Court appear to have overflow pipes directed to the Harbor; however, no outfalls were located.





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Drainage Area L

Stormwater runoff within Drainage Area L flows along the roadways of Soundview Drive and Harbor Beach Road towards the east and is deposited within a complex of five roadside catch basins located adjacent to the triangle intersection created by Graham Court, Pipe Stave Hollow Road and Harbor Beach Road. The runoff appears to be directly discharged to the subsurface and the release of stormwater to the Harbor is apparently limited due to a small berm along the shoreline edge. However, during periods of high tide, deposition of stormwater into the Harbor likely occurs.



Drainage Areas N & O

Drainage Areas N & O are located along Harbor Beach Road in the northern portion of the Harbor. Similar to Drainage Areas J & K, the roadway is immediately adjacent to the eastern portion of the Harbor and often submerged during extreme storm events. Drainage Area N is mainly flat, with residential uses located on the northern side of Harbor Beach Road. No drainage structures are located along Harbor Beach Road, and sheet flow of runoff was observed from the roadway towards the Harbor during storm events. Cedar Beach Marina is located on the western portion of Drainage Area N and the eastern portion of Drainage Area O (on the south side of Harbor Beach Road), where significant improvements were recently completed (spring/summer 2005). The parking area historically sloped steeply towards the Harbor which conveyed stormwater directly to the Harbor via overland flow or via two existing outfalls. The Cedar Beach Marina improvements included removal of the two existing outfalls, installation of a drainage system throughout the parking lot area (leaching pools and catch basins) and re-grading of the parking area to convey stormwater away from the Harbor and towards the newly installed drainage system inlets. Three additional marinas (Old Man's Boat Yard, Mt. Sinai Yacht Club, and Ralph's Fishing Station) and a Town maintenance facility are also located on the south side of Harbor Beach Road in Drainage Area O. The parking areas at each of the marinas are dominated by gravel rather than impervious pavement, and drainage systems are currently provided at the Mt. Sinai Yacht Club and the Town maintenance facility.





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Drainage Areas P & Q

Drainage Areas P and Q are located on the northwestern side of the Harbor, within the Village of Port Jefferson. The drainage area extends north and east from Stern Drive and west to Village Beach Road. The central portion of Stern Drive is a topographic high point, which generally slopes towards lower elevations along the Long Island Sound to the north and towards the Harbor to the east. The area is residentially developed with \pm one acre lots, many which have frontage on the Harbor. Drainage structures are located throughout the streets in this area, which were observed to be adequately intercepting stormwater runoff. Stormwater runoff is expected to reach the Harbor via overland for those Harborfront lots which maintain limited natural vegetation.

Drainage Areas R & S

Drainage Areas R and S are located on the western side of the Harbor, mainly within the Village of Port Jefferson. The drainage areas extend from the south side of Stern Drive to the northern tip of Nadia Court. The western portion of the drainage areas (west side of Crystal Brook Hollow Road and Winston Drive) are higher in elevation (\pm 120 feet to \pm 160 above sea level), with steep cliffs located on the west side of the majority of Crystal Brook Hollow Road. Stormwater in Drainage Area R generally flows from higher elevations in the north and west towards the south and east to the lower elevations along Mt. Sinai Harbor. The eastern portion of Crystal Brook Hollow Road is the topographic low in this drainage area (elevations of less than \pm 10 feet above sea level); therefore stormwater in Drainage Area R is conveyed to this low area and conveyed towards the Harbor creating a Discharge Area in this location. It is noted that catch basins are located on Winston Drive, Waterview Drive, and the intersection of Winston Drive and Crystal Brook Hollow Road that assist in diverting and recharging stormwater runoff from the higher elevation areas. Crystal Brook Road originates on the east side Winston Drive and terminates as a cul-de-sac at the Harborfront in the eastern portion of Drainage Area R. The cul-de-sac terminus of Crystal Brook Road is an expansive area of pavement (see picture above), and sheet flow of stormwater into the Harbor was observed in the field, with erosion from stormwater runoff noted in several areas along the east side of the road. Two catch basins with outfall pipes into the Harbor are located on the north and east sides of this cul-de-sac.





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The northern portion of Drainage Area S similarly drains from higher elevations in the north and west towards Crystal Brook Hollow Road and low lying areas to the east. Catch basins are located on the south side of Ronald Court and at the intersection of Oakwood Road and Crystal Brook Hollow Road which assist in capturing and recharging stormwater from areas of higher elevations. Crystal Brook Hollow Road in the southern portion of Drainage Area S maintains an elevation between 20-50 feet in elevation, then drops to an elevation of ± 10 feet above



sea level in the central portion of Drainage Area S, creating a regional low point. Crystal Brook Hollow Road is not curbed (see photograph right) and stormwater runoff is generally directed towards the lower elevations on the east side of the road, creating a Discharge Area on the east side of Crystal Brook Hollow Road (towards an existing tidal marsh) in the central portion of Drainage Area S. Stormwater in the southern portion of Drainage Area S is conveyed north following the topographic profile of the roadway and east towards lower elevations on the east side of Crystal Brook Hollow Road. The east side of Crystal Brook Hollow Road in the southern portion of Drainage Area S is mainly vegetated area consisting of oak-beech forest. Field observations in the southern portion of Drainage Area S also noted signs of erosion from seeping water running down the cliff along on the west side of Crystal Brook Hollow Road.

Based on the stormwater and drainage area inventory provided above, recommendations for stormwater improvements are provided in **Section 5.0**. A prioritization of the proposed recommendations and implementation strategy for the various recommendations is provided in **Section 6.0**.



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2.5 Planning & Management Framework

The Mt. Sinai HMP is designed to build on a policy and planning foundation that was established by several earlier studies. Each of these studies is incorporated into the Mt. Sinai HMP by reference. In addition, the Mt. Sinai HMP will be included within the Town of Brookhaven's Local Waterfront Program Plan at the time that plan is adopted.

These studies are listed and briefly described below:

Town of Brookhaven - Comprehensive Land Use Plan: May 1996

Mt. Sinai Hamlet Study: February 1996

Town of Brookhaven: Draft Local Waterfront Revitalization Program (LWRP): 1990

*Long Island Sound Study **Comprehensive Conservation and Management Plan (LISSCMP): 1994***

Long Island Sound Coastal Management Plan (LISCMP): 1999

Suffolk County, North Shore Embayments Watershed Management Plan: pending

2.5.1 *Comprehensive Land Use Plan: May 1996*

This document sets forth general planning principles for development and land uses within the Town of Brookhaven. There were separate hamlet-level studies conducted in the Mt. Sinai Harbor area: for Mt. Sinai and Miller Place, which are discussed below.

2.5.2 *Mt. Sinai Hamlet Study: 1996*

The Town of Brookhaven completed the Mt. Sinai Hamlet Study in 1996 as a blueprint for envisioning and identifying the important positive attributes and components defining Miller Place's future. The Study contains a list of recommendations that address specific issues and needs important to that community. Recommendations that are of specific relevance to the Harbor Management Plan are provided below:

- Development of lands around the Harbor should be carefully controlled to safeguard the character of the environment. Slopes should not be developed and houses should be clustered. Particularity mentioned is the Chandler Property & St. Francis and Poor Clare;
- Restore and maintain low profile use area for the Marine Sanctuary area by Crystal Brook Hollow Pond;
- Develop and run an educational program utilizing the Marine Sanctuary Facility in connection with the Mt. Sinai and Miller Place School Districts;
- Improve Town Cedar Beach Facility to coordinate and deliver recreational services in an enhanced pleasant public park;
- Mitigate stormwater runoff into Harbor using "environmentally-friendly" means such as artificially created wetlands;
- Consider designation of Mt. Sinai Harbor as a "No-Discharge Zone";
- Provide additional pump-out facilities within in the Harbor;
- Conduct habitat restoration including that of tidal and freshwater wetlands;
- Continue designation as a Marine Sanctuary;



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- Post additional signage at Cedar Beach, Satterly Landing and other areas regarding prohibitions on clamming on Sundays, 5-mile speed limit or no wake zone, parking on boat ramps, and appropriately enforce;
- Better enforcement of existing environmental laws;
- Consider controls on personal watercraft and water-skiing;
- Consider recommendations of NYSDOS and NYSDEC regarding Significant Coastal Fish and Wildlife designation; and
- Develop overall environmental management plan for the Harbor.

2.5.3 *Local Waterfront Revitalization Program (LWRP): Draft 1990*

This draft contains a general inventory and analysis of the entire coastal area within Brookhaven Town. The Brookhaven shoreline was divided into LIDs or Local Implementation Districts, for the purpose of identifying localized areas of concern and localized recommendations. The Mt. Sinai Harbor area that is the focus of this HMP lies mostly within LID VI. A small portion of the Harbor, the portion that lies within the jurisdiction of Port Jefferson Village, lies within LID VII. The Draft LWRP suggested specific recommendations for Mt. Sinai Harbor. These recommendations were reviewed as part of the inventory and analysis of this HMP.

2.5.4 *Long Island Sound Study Comprehensive Conservation and Management Plan (LISS CCMP): 1994*

Long Island Sound was formally designated an "Estuary of National Significance" under the National Estuary Program in 1988. The Long Island Sound Study's Comprehensive Conservation and Management Plan "characterizes the priority (water quality) problems affecting Long Island Sound and identifies specific commitments and recommendations for actions to improve water quality" (**LISS CCMP, 1994**). In addition, the plan proposes actions to increase public education and involvement, protect aquatic resources and habitats, monitor progress, and refine management efforts.

Recommendations in the CCMP were designed to address specific issues that relate to protecting the Sound's living resources and natural habitats. Water pollution control efforts play a critical role in protecting these resources and habitats. The study recommends the creation of a system of reserves targeted at the Sound's most significant and essential habitats. These reserves would be repositories, through acquisition and other means, the most important areas for long-term protection. In addition, the study recommends the enhancement of tidal wetlands protection and the establishment of harvestable, endangered and threatened species programs at the state and federal levels.

In support of the LISS, Suffolk County is preparing a *Suffolk County North Shore Embayments Watershed Management Plan* which will develop strategies to limit point and nonpoint sources loading inputs into Long Island Sound. This report is being prepared by NP&V and EEA in consultation with the Suffolk County Department of Health Services and is discussed in more detail below.

One of the implementation actions underway is the Long Island Sound Stewardship Initiative. The Initiative is a public/private voluntary partnership whose purpose is to identify places with significant



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ecological or recreational value and to develop a strategy for their protection and enhancement. In 2004, Mt. Sinai Harbor, along with Port Jefferson Harbor, was chosen as a priority site. Selection as a stewardship site will enhance the possibility of obtaining funding to assist with acquisition, planning, management, and public access improvements. (Source: Long Island Sound Study website: <http://www.longislandsoundstudy.net/stewardship/index.htm>)

2.5.5 Long Island Sound Coastal Management Program (LISCMP): 1999

The LISCMP plan was prepared by the New York State Department of State to identify and guide the specific conservation and development needs of the Long Island Sound coastal region. This plan is being used to guide Federal and State actions and investments in economic and environmental resources within the Long Island Sound region. The plan encompasses the shoreline of Westchester County and Long Island beginning at the Throg’s Neck Bridge and running eastward through Nassau and Suffolk Counties. The plan does not apply within the boundaries of State-approved Local Waterfront Revitalization Programs (LWRP) of local governments within the region. Until Brookhaven Town adopts an approved LWRP, Federal and State agencies will use the LISCMP as a guide to ensure consistency of their actions with State coastal policies.

The LISCMP plan defines a balance between appropriate and needed economic development; and protection and restoration of the natural and living resources of the Sound. The LISCMP complements the Long Island Sound Study’s Comprehensive Conservation and Management Plan (LISS CCMP) described earlier. The LISS focuses on water quality in the deep waters of the Sound. The LISCMP focuses on the upland watershed and harbor and nearshore waters (NYSDOS, 1999).

The vision that frames the LISCMP is "... a Long Island Sound coastal area enriched by **enhancing** community character, **reclaiming** the quality of natural resources, **reinvigorating** the working waterfront, and **connecting** people to the Sound..." (NYSDOS, 1999). The LISCMP examines the land and water resources of the Sound from four perspectives. These are:

- The Developed Coast* *Enhance community character by improving the quality of existing development, promoting a sense of connection to the Sound, and focusing growth and investment to preserve the positive relationship between the built and natural landscapes and between existing and new development.*
- The Natural Coast* *Reclaim the value and achieve sustainable use of the Sound's natural resources by improving the quality and function of ecological systems, respecting the dynamics of shoreline change, and providing high quality coastal waters.*
- The Public Coast* *Connect people to the Sound and its public resources by improving visual and physical access and by providing a diversity of recreational opportunities.*
- The Working Coast* *Reinvigorate the Sound's working waterfront, its jobs and products, at appropriate locations by protecting uses dependent*



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on the Sound, furnishing necessary infrastructure, providing business and marketing assistance, and promoting efficient harbor operations (NYSDOS, 1999).

Using this four-part theme as its context, the LISCOMP sets forth thirteen policies for the management of the coastal zone of Long Island Sound (NYSDOS, 1999):

- Policy 1 Foster a pattern of development in the Long Island Sound coastal area that enhances community character, preserves open space, makes efficient use of infrastructure, makes beneficial use of a coastal location and minimizes adverse effects of development.
- Policy 2 Preserve historic resources of the Long Island Sound coastal area.
- Policy 3 Enhance visual quality and protect scenic resources throughout Long Island Sound.
- Policy 4 Minimize loss of life, structures, and natural resources from flooding and erosion.
- Policy 5 Protect and improve water quality and supply in the Long Island Sound coastal area.
- Policy 6 Protect and restore the quality and function of ecological systems of the Long Island Sound ecosystem.
- Policy 7 Protect and improve air quality in the Long Island Sound coastal area.
- Policy 8 Minimize environmental degradation in the Long Island Sound coastal area from solid waste and hazardous substances and wastes.
- Policy 9 Provide for public access to, and recreational use of, coastal waters, public lands, and public resources of the Long Island Sound coastal area.
- Policy 10 Protect Long Island Sound's water-dependent uses and promotesiting of new water-dependent uses in suitable locations.
- Policy 11 Promote sustainable use of living marine resources in Long Island Sound.
- Policy 12 Protect existing agricultural lands in the eastern Suffolk County portion of Long Island Sound's coastal area.
- Policy 13 Promote appropriate use and development of energy and mineral resources.

The LISCOMP sets forth fifty recommendations, of which a number apply (directly or indirectly) to Mt. Sinai Harbor. Among the plan's priorities is the acquisition of land around Mt. Sinai Harbor, specifically upland adjacent to wetlands and freshwater wetlands adjacent to tidal wetlands with an emphasis on Pipe Stave Hollow (NYSDOS, 1999).

The Village of Port Jefferson and its Harbor are recognized as one of ten traditional maritime centers (NYSDOS, 1999) and also targeted as one of six special waterfront redevelopment areas (NYSDOS, 1999). By contrast, Mt. Sinai Harbor is identified as one of thirteen regionally important natural priority areas (NYSDOS, 1999). Regionally important natural areas are characterized by the following three conditions:

- Condition 1: The area contains significant natural resources.
- Condition 2: The resources are at risk.
- Condition 3: Additional management measures are needed to preserve or improve the significant resources, or sustain their use (NYSDOS, 1999).

Because of their inherent relevance to the Mt. Sinai HMP, the objectives of the Long Island Sound Coastal Management Program for regionally important natural areas are listed below (NYSDOS, 1999):

- Prevent fragmentation of natural ecological communities.



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- Curtail nutrient and contaminant loads to Long Island Sound and its tributaries.
- Manage development in the watersheds to result in cleaner surface waters, protection of estuarine life, maintenance of commercial shellfishing, and restoration of shellfish harvesting where natural ecosystem processes may permit.
- Maintain the benefits of natural shoreline functions.
- Protect and restore freshwater and tidal wetlands and their natural functions.
- Protect and, where appropriate, expand populations of New York Natural Heritage elements (endangered, threatened, and rare species and rare natural communities).
- Maintain sustainable populations of fish, shellfish, and wildlife species that depend on the area's resources for critical stages in their life cycles.
- Protect, and where possible, expand native plant communities.
- Ensure that recreational activities will be compatible with the protection of ecological communities; endangered, threatened, and rare species; species of special concern; economically important species; and other intrinsic ecosystem elements.
- Prevent impairments to coastal access and develop new access opportunities that are compatible with protection of natural resources.
- Involve the public in the process of protecting the resources of the regionally important natural area.
- Preserve the historic and cultural resource of the area with special consideration to sustainable resource-based economic activities.

Until a Local Waterfront Revitalization Program is adopted by the Town of Brookhaven, the LISCMP will be used by Federal and State agencies to ensure consistency with state guidelines and law. The Mt. Sinai HMP was designed to be consistent with the LISCMP.

2.5.6 *Suffolk County North Shore Embayments Watershed Management Plan: pending*

This plan is a direct result of the recommendations made in the LISS CCMP and LISCMP reports that were discussed earlier. Nelson, Pope & Voorhis, LLC along with EEA, Inc. completed an intensive watershed study for the north shore of Suffolk County. The *Suffolk County North Shore Embayments Watershed Management Plan* is designed to estimate existing and future pollution loads and to develop a plan that would allow Suffolk County to significantly reduce its nitrogen load to Long Island Sound by the year 2014. Nelson, Pope & Voorhis used GIS technology to collectively look at decades of surface and ground water quality data, consider sensitive natural resource areas, land use and soils, storm drainage systems, sewer vs. non-sewered areas, population growth, and ultimately determine point and nonpoint source pollution loads from priority subwatersheds. NP&V developed a spatially-based model to estimate past, current and future nitrogen loads from individual pollution sources (i.e. sewage treatment plants, septic systems, lawn fertilizers, agricultural fertilizers, road runoff, etc.) and determine the sources of nitrogen that could be most effectively and economically managed.

Much of the inventory and recommendations that were developed for the *Suffolk County North Shore Embayments Watershed Management Plan* for the purpose of implementing pollution reduction measures, including best management practices and promoting public education at the local level, were used in the Mt. Sinai HMP.



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Summary

This inventory of Mt. Sinai Harbor explored known factual data, identified key issues of concern, and examined relevant planning documents within the Harbor management area. Several issues and opportunities that were previously identified by the Harbor Management Advisory Committee (HMAC) are discussed in **Section 3.2**. **Section 4.0** states the goals and objectives of the Harbor Management Plan and **Section 5.0** provides specific recommendations to achieve the goals of the Mt. Sinai Harbor Management Plan. An implementation strategy for the Harbor Management Plan is provided in **Section 6.0**.



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3.0 DEVELOPMENT OF THE HARBOR MANAGEMENT PLAN



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3.0 DEVELOPMENT OF THE HARBOR MANAGEMENT PLAN

3.1 Mt. Sinai Harbor Management Advisory Committee (HMAC)

As noted earlier in this document, Mt. Sinai Harbor lies within several governmental and quasi-governmental jurisdictions. Developing and implementing an effective management plan for a shared resource requires a consensus amongst the users of the resource. Towards this end, a *Harbor Management Advisory Committee (HMAC)* was formed with representatives from the various local municipalities, regulatory agencies, interest groups to provide input and guidance throughout the development of the management plan. The Committee members are:

Ms. Deirdre Du Bato, President
Mt. Sinai Civic Association

Mr. Hal Salyer
Mt. Sinai Harbor Advisory Committee

Ms. Kim Hagerman, Chairperson
Mt. Sinai Harbor Advisory Committee

Mr. Harry Faulknor, Trustee
Village of Port Jefferson

Mr. Steve Brown, Chairperson
Conservation Advisory Committee
Town of Brookhaven

Hon. Kevin McCarrick, Councilman
Town of Brookhaven

Hon. Daniel P. Losquandro
Suffolk County Legislator

Mr. John Schreck P.E.
Commercial Recreational Fisheries

Mr. John L. Turner, Director
Division of Environmental Protection
Town of Brookhaven

Mr. Walter Birney

Mr. Robert Chartuk, Commissioner
Town of Brookhaven Parks Department

Mr. DeWitt Davies, Chief Environmental
Analyst
Suffolk County Dept. of Planning

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The Harbor Management Advisory Committee first met on October 7, 2004 for the purpose of reviewing the Project Objective which subsequently was defined as developing an achievable harbor management plan that addressed the multiple needs of Mt. Sinai Harbor and that identified specific regulatory and management actions with which to implement the plan. The HMAC also agreed on a preliminary set of goals, discussed in **Section 4.0**.



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A subsequent meeting of the HMAC took place on November 18, 2004, at which time the group used a 3-D topographic computer-simulated model of the harbor (created by the consultants for this exercise) to identify key issues and problems facing the Harbor. The HMAC then broke up into smaller groups for brainstorming utilizing aerial photographs, resource and zoning maps, land use information of the Harbor. Issues and concerns were identified; along with potential solutions and opportunities developed based on the individual HMAC members' knowledge of local conditions and professional areas of expertise. The issues and opportunities compiled by the HMAC are identified in Section 3.1.1 (Issues) and 3.1.2 (Opportunities and Solutions):

3.1.1 Issues

1. Avoid unnecessary dredging and navigational problems at the Jetty, maintain appropriate depth at inlet, & proper circulation/flushing of the inner Harbor.
2. Non point source pollution sources, i.e. source at corner of Post Road and Shore Road.
3. Stormwater runoff and sheet flow from roads along the shore.
4. Enforcement of the No Wake Speed Zone in Harbor to help reduce impacts to tidal wetlands.
5. Poor navigational lighting at Inlet.
6. Nitrogen loading of the Harbor from various sources such as boat discharges, fertilizers, geese, stormwater runoff.
7. Allowable uses and future development considerations for the Marina Waterfront (MW zoned parcel) located in the Village of Port Jefferson (along the southwestern portion of the Harbor) and significant areas of open space at Crystal Brook.
8. Significant areas of privately held land are available in the Harbor area.
9. Enforcement of clearing or "topping" of trees on waterfront properties.
10. Insufficient staffing at Nature Center, improve and expand the success of the existing school and community education programs.
11. Lighting along the parking area and Shore Road is high-glare causing navigational difficulty in the Channel.
12. Poor parking configuration at Cedar Beach Marina (i.e., shared with public boat launch and boat trailer parking; existing parking area near K dock is currently blocked).
13. Availability & security of public facilities at Cedar Beach; i.e., bathrooms close too early in season (7:30 pm), security of docked boats & neighboring residential areas.
14. Easy access to dinghy storage at Cedar Beach without impacts to tidal vegetation & the shoreline.
15. Insufficient signage at the marina for trash & recycling locations, pump-outs, environmentally safe boat cleaners, etc.
16. Insufficient security, vandalism (particularly in the off-season) & littering; complaints from local residents are on file with the CAC.
17. Common activities of the land/business owners surrounding the Harbor as well Harbor users contribute to pollution to the Harbor (i.e., pesticide application on lawns, harmful boat cleaners used on boats, boat repair operations, etc.)
18. Walking access to along Harbor Beach and Pipe Stave Hollow Road- the Tallmadge Trail is marked but extremely dangerous to walk along the road.

3.1.2 Opportunities and Solutions

1. Review Suffolk County plans for dredging in 2006 and continue to work with the County to maintain adequate navigation depths of the Harbor.



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2. Continue pump-out stations within the Marina & provide necessary staffing for the Town operated pump-out boat.
3. Regulate the Harbor as a “No Discharge Zone.”
4. Greater enforcement of the 5 MPH Speed Limit both for safety & to reduce wake/wave impacts to the tidal marsh vegetation.
5. Creation of the Town Waterway Division for watershed area management and staffing.
6. Improve navigational aids at the jetties, inlet and channel.
7. Improve lighting at Cedar Beach to reduce glare.
8. Evaluate appropriate uses for the MW zoned parcels in Village of Port Jefferson or consider change of zone.
9. Better use of the Nature Center; i.e., improve and expand the success of the existing school and community education programs, cultural or history of the Harbor information.
10. Prioritize staffing for Town shellfish program.
11. Evaluate public safety and security concerns around the marina.
12. Establish a fishing access point in the eastern portion of the Harbor.
13. Improve educational signage along Dune Walk and at Cedar Beach Marina for park user and boater awareness, trash & recycling locations, pump-outs, environmentally safe boat cleaners, etc.
14. Define tidal circulation patterns.
15. Prioritize potential open space areas for acquisition.
16. Mooring plan for all areas within the Harbor.
17. Evaluate and prioritize stormwater improvement projects including outfall identification, areas of roadway sheet flow, drainage improvements to roadways adjacent to the Harbor and upland areas connected to the drainage outfalls to the Harbor.
18. Provide dinghy docks or solution for improved dinghy storage safety.
19. Evaluate the demand for public access areas such as parking, restrooms, etc. and provide appropriate hours of operation.
20. Create a pedestrian trail along Pipe Stave Hollow and Harbor Beach Road (existing Tallmadge Trail) and enhance access and safety for pedestrian users.
21. Team with existing outreach programs and organizations to sponsor beach clean ups, “Harbor Watch,” and expand educational programs and signage.
22. Use existing education materials or develop mailings to alert Harbor users and surrounding land owners/users of common actions that impact water quality such as chemical boat cleaners, fertilizer and pesticide use, and tree clearing. Consider including materials w/Town docking/mooring permits.

Based on the issues and opportunities identified during this exercise, the HMAc then reviewed and revised the draft goals for the Harbor Management Plan.

Subsequent to these meetings, the consulting team completed the resource and land use inventory. The team also explored various ways to constructively and creatively address the potential issues and problems identified by the HMAc. Throughout this stage, individual HMAc members provided additional insights and information.



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3.2 Public Outreach

On March 29, 2005, a public outreach meeting was sponsored by the Town to gather input from the public on a number of issues within the Mt. Sinai community, including the preparation of the Mt. Sinai Harbor Management Plan and the plans for improvements at the Cedar Beach Marina in the Harbor. Chic Voorhis from Nelson, Pope & Voorhis (NP&V), provided an overview of the purpose of Mt. Sinai HMP. The proposed plans for improvements at Cedar Beach Marina were then presented and discussed with the public. These improvements included re-grading of the marina parking lot and installation of stormwater drainage system throughout the parking area; extension of the existing pier to provide additional docking area for boats; creation of a dinghy storage areas adjacent to the parking lot and relocation of dinghies off the beach and marsh into the storage areas; re-vegetating and stabilizing the shoreline; construction of a boardwalk along the waterfront, construction of a designated commercial boat ramp, and installation of permanent restroom facility.

Following this presentation, a discussion was held during which the following comments and issues were raised by the public regarding the HMP:

- Harbor Beach Road experiences regular flooding, which needs to be addressed;
- Walking trails should be created along Shore Road and Harbor Beach Road;
- Opportunities for convenient canoe and kayak access at Satterly Landing should be created;
- A method for assigning dinghy storage racks should be established;
- Existing boat slips are too narrow;
- An education and information program should be created and launched with the new Cedar Beach improvements;
- Security is a concern at Cedar Beach marina and with residents in the vicinity.

On May 5, 2005, the HMAC meet to prepare, review and finalize the public presentation of the preliminary findings and recommendations (scheduled May 16, 2005). On May 16, 2005, a public hearing was held to present the key findings of the preliminary resource inventory that had been prepared by the consulting team, and proposed goals and preliminary recommendations as suggested by the HMAC. Input was obtained from the citizens who attended this meeting and these comments were considered during the preparation of this report.

The consulting firm, NP&V, presented an inventory of the Harbor and the key resources and outlined preliminary recommendations on specific areas of the Harbor. The recommendations included improvements to Cedar Beach Marina (drainage, shoreline stabilization, re-vegetation, dinghy storage areas, new boat launch); specific stormwater improvement projects around the Harbor, creation of a pedestrian path network, improvements in public access, improvements in education programs to encourage use of pump-out facilities, and potential regulatory considerations for tree clearing, preservation of open space, and creation of a no-discharge zone within the Harbor.



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The comments received during the public hearing are summarized below and were incorporated into the recommendations and implementation strategy presented in Sections 5 and 6 of this document:

- Pump-out facilities: The pump-out facilities need to be more accessible for boaters to use them. It was suggested that a schedule of when the pump-out facilities are opened should be posted/advertised.
- Dinghy storage: Assignments should be given for dinghy racks as the space is limited and there are ± 500 moorings in the Harbor. It was indicated that residents would consider paying for a launch service if it were available.
- Parking at Cedar Beach Marina: Trailer parking should be relocated to the rear of the parking area to allow for temporary dinghy and equipment loading/unloading parking (limited 15 minute parking was suggested). Boat access in Area #5 needs improvement. Landscaped islands would also enhance the parking area.
- Chandler Estate: There has been notable damage to trees in the Chandler Estate. The property is valuable to the community and needs to be managed as intended.
- Flooding and stormwater runoff is an issue. The Harbor Management Plan should include recommendations for drainage improvements and identify funding sources that may be available for stormwater improvements.
- Golf Course Management: Questions regarding the management of the golf course in Port Jefferson Village, near the Harbor, were raised and it was recommended that an integrated pesticide management plan be adopted/considered.

Meeting minutes and summaries of the HMAAC and public meetings held in development of the HMAAC are provided **Appendix H**.



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4.0 GOALS AND OBJECTIVES



MT. SINAI HARBOR MANAGEMENT PLAN



4.0 GOALS AND OBJECTIVES

The following Goals and Objectives of the Mt. Sinai Harbor Management Plan reflect the consensus of the surrounding community.

4.1 Goals of the Harbor Management Plan

Five goals for the Mt. Sinai Harbor Management Plan were agreed on by the HMAC and the public. These goals, and their objectives are described below.

Goal #1: Enhance and Protect the Natural Resources of Mt. Sinai Harbor

The natural resources of Mt. Sinai Harbor are essential to the quality of life around the harbor. The enhancement and protection of these resources will yield multiple benefits. For instance, restoration and protection of tidal and coastal fresh water wetlands will result in improved water quality, improved flood and stormwater management, enhanced marine food production, improved wildlife habitat, more scenic open space vistas, as well as educational opportunities.

Goal #2: Document and Protect the Cultural Resources of Mt. Sinai Harbor

The cultural resources of the land around Mt. Sinai Harbor are an integral part of the community's history and character, both of which contribute to its unique sense of place. These resources include archeological sites, historical structures and sites as well as scenic character. There also remain vestiges of the harbors' maritime and agricultural history. Unless efforts are taken to document and protect these resources from decay or destruction, the character of the land around the harbor, and the harbor itself, will change in ways contrary to the community's interest.

Goal #3: Improve and Protect the Water Quality of Mt. Sinai Harbor

The ability to swim, fish and harvest shellfish from Mt. Sinai Harbor is important to the community's enjoyment of the harbor, thus is an integral part of its quality of life. Past development practices have had a detrimental impact on the water quality, which, in turn, has had a detrimental impact on some parts of the marine environment within the harbor. Improving the water quality (as well as protecting it from further degradation) would benefit both the environment and the people using it.

Goal #4: Balanced Management of Water and Land Uses of Mt. Sinai Harbor

Mt. Sinai Harbor is an ecosystem that is used extensively by residents and visitors. The unique environmental, historic, cultural and scenic attributes of the harbor are what draw people to it, and are the very things that can be destroyed through over use. Balanced management of the waters of the harbor and the land uses around it will enable the Harbor's ecosystem to retain its environmental vitality and scenic qualities.

Goal #5: Improve Public Awareness of Mt. Sinai Harbor through Education

A greater understanding by the users of Mt. Sinai Harbor of its history and its workings will translate into a greater appreciation of the resources and the efforts being undertaken to enhance



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and protect them. In addition, land owners and visitors alike can play a vital role in protecting the Harbor's unique and fragile resources (be they environmental, archeological, historical, cultural or scenic) if they are made aware both of their existence and of the ways in which they can act to protect those resources.

4.2 Objectives of the Harbor Management Plan

For the purpose of providing a framework for the Recommendations (**Section 5**) and the Implementation Strategy (**Section 6**), the key objective(s) of each Goal is defined as follows:

Goal #1: Enhance and Protect the Natural Resources of Mt. Sinai Harbor

Objective:

- Ensure that the Harbor's natural resources are managed and used in a manner that will ensure the long-term viability of the ecosystem and its ability to support wildlife habitat.

Goal #2: Document and Protect the Cultural Resources of Mt. Sinai Harbor

Objectives:

- Maintain and enhance the historic character (e.g. marine uses, residential communities, agricultural operations, open space) of the Harbor and its surrounding land.
- Improve and manage the unique visual and aesthetic resources that define this Harbor and the surrounding community character.

Goal #3: Improve and Protect the Water Quality of Mt. Sinai Harbor

Objective:

- Enable the Harbor's ecosystem to regenerate itself and to improve by reducing the amount and types of pollutants introduced into it via human uses of the Harbor (e.g. boating and waste disposal) and of the surrounding land, e.g. stormwater runoff.

Goal #4: Balanced Management of Water and Land Uses of Mt. Sinai Harbor

Objectives:

- Maximize uses of the Harbor, and public access to its shoreline without destroying the natural resources on which enjoyment of the Harbor is based.
- Reduce conflicts between human uses of the Harbor and the Harbor's natural characteristics and high natural resource values.
- Ensure a safe and aesthetic environment for the various uses of the Harbor.
- Maintain and promote traditional commercial and recreational fishery operations..

Goal #5: Improve Public Awareness of Mt. Sinai Harbor through Education

Objectives:

- Create a strong watershed protection ethic and promote general environmental stewardship of the Harbor's resources on the part of residents and users of the Harbor.
- Encourage public protection of the Harbor by promoting an understanding and appreciation of its natural resources, its maritime history and uses.



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5.0 RECOMMENDATIONS



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5.0 RECOMMENDATIONS

The purpose of the Mt. Sinai HMP is to foster careful and effective management of the water and adjoining land uses of the Harbor. If implemented as designed, this management plan will result in the protection of the ecological systems of the Harbor while also permitting optimum use of its resources.

These recommendations flow from careful consideration of the findings of the inventory and analysis contained within **Section 2.0**, and the issues and opportunities identified in **Section 3.0**. And, they are designed to achieve the goals set forth in **Section 4.0**.

The recommendations are organized by the primary Goal they are intended to achieve. Some recommendations address two or more goals, which are noted in the text. All the recommendations are consistent with the spirit of the Town of Brookhaven's Draft Local Waterfront Revitalization Program. The Goals and Objectives were discussed extensively in **Section 4.0**. Each set of recommendations follows an abbreviated description of the Goal and Objectives it is intended to achieve.

Goal #1: Enhance and Protect the Natural Resources of Mt. Sinai Harbor

The key objectives of this goal are to redress existing environmental damages to the natural resources of the Harbor and to improve the health of those resources in ways that will enhance the future productivity and health of the Harbor's ecosystem.

Recommendations:

- Adopt a strategic program to restore, enhance and protect wetlands within the Harbor. The program should contain the following components:
 - restore damaged or lost wetlands through the use of proactive methods such as reintroducing wetland plants and removing physical impediments to their growth;
 - enhance existing wetlands by removing invasive species such as *Phragmites*;
 - improve wetland productivity by eliminating or reducing point and nonpoint sources of pollution; and
 - protect wetlands by reducing wave action and erosion of substrate caused by motor-boating and jet ski activities.
- Enhance productivity of existing Harbor shellfish resources by:
 - reducing source and nonpoint sources of water pollution to the Harbor; and
 - re-establishing conducive underwater habitat conditions for shellfish.
- Continue to enhance diamondback terrapin habitat by:
 - moving all dinghies and small sailboats off the shoreline to designated storage areas (e.g. dinghy storage racks at Cedar Beach Marina);
 - protecting known nesting areas from trampling by directing public access to multiple designated public access points by constructing boardwalks for human traffic (e.g. newly installed dinghy access ramps at Cedar Beach Marina); and
 - posting turtle crossing signs at key locations.



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- Enhance horseshoe crab habitat and populations by:
 - petitioning the Marine Division of the New York State Department of Environmental Conservation (NYSDEC) to enforce existing quotas on the harvesting of horseshoe crabs by commercial fishermen for bait purposes;
 - supporting census efforts to monitor populations;
 - consider asking the NYSDEC to impose lower harvest quotas; and
 - protect nesting areas on beaches during breeding and hatching seasons by moving all dinghies and small sailboats off the shoreline to designated storage areas and by constructing elevated boardwalks or marked trails along portions of the shoreline suffering from heavy foot traffic.
- Adopt and implement a long-term strategic management plan to improve the quality of ground and surface waters feeding into the Harbor as described in the recommendations for **Goal # 3: Improve and Protect the Water Quality of Mt. Sinai Harbor.**
- Reduce the impact of artificial lighting from docks, piers, streets and houses by adopting a lighting policy that all lighting be shielded downward and be “night-sky” compliant.
- Coordinate with the NYSDEC, the Marine Sciences Research Center of SUNY Stony Brook, the New York Sea Grant program and Cornell Cooperative Extension’s Marine Science Division to develop and fund long- term research programs within the Harbor. The research programs should focus on the following:
 - the nature and extent of geographic, bathymetric, and other underlying causes that may be contributing to the continued loss of tidal wetlands (e.g. severe wave action, dredging of existing channels to excessive depths or widths, location of existing dredged channels relative to wetlands, poor dock and bulkhead design, erosion and sedimentation, tidal flow, poor water quality);
 - strategies to reverse the loss of vegetated wetland and other habitat essential to a healthy marine and wetland ecosystem within the Harbor;
 - regular monitoring of the extent and vigor of natural and indigenous vegetation; and
 - documenting the current extent and continued spread of invasive species within the Harbor and surrounding shoreline so that appropriate management and control options can be implemented.
- Enforce existing regulations against clear cutting of wooded areas within the Harbor management area, specifically the following regulations: Chapter 35 Grading, and Chapter 70 Tree Preservation of the Brookhaven Town Code, and Chapter 241 Trees, Grading and Land Clearing of the Port Jefferson Village Code.
- Expand existing land acquisition efforts by adding three (3) additional currently vacant parcels of land to the lists of properties recommended for acquisition by the Town of Brookhaven’s Community Preservation Project Plan (2003) and the Draft New York State Open Space Plan (NYSDEC, 2005) (see **Section 2.3.4, Figure 5-1 and Table 5-1**). The additional parcels total 5.42 acres. Acquisition of these parcels is recommended because of their proximity to existing publicly-owned land and/or because of their environmental sensitivity.



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**TABLE 5-1
RECOMMENDED PARCELS FOR ACQUISITION IN THE
MT. SINAI HARBOR DRAINAGE AREA**

ID	Acres	Dist.	Sec.	Blk.	Lot	Vacant	Source	Drainage Area
1	0.29	200	8	1	24.000	Yes	TOB Final Community Preservation Project Plan, 2003	N
2	0.38	200	8	1	41.000	-	TOB Final Community Preservation Project Plan, 2003	N
3	2.08	200	9	1	5.003	Yes	TOB Final Community Preservation Project Plan, 2003	L
4	0.59	200	25	1	1.000	Yes	TOB Final Community Preservation Project Plan, 2003	K
5	1.30	200	25	2	11.004	Yes	TOB Final Community Preservation Project Plan, 2003	J
6	1.15	200	25	2	11.003	Yes	TOB Final Community Preservation Project Plan, 2003	J
7	1.45	200	25	2	5.006	Yes	TOB Final Community Preservation Project Plan, 2003	J
8	0.63	200	25	3	1.001	-	TOB Final Community Preservation Project Plan, 2003	I
9	0.25	200	25	3	2.000	Yes	TOB Final Community Preservation Project Plan, 2003	I
10	0.25	200	25	3	3.000	Yes	TOB Final Community Preservation Project Plan, 2003	I
11	0.25	200	25	3	4.000	Yes	TOB Final Community Preservation Project Plan, 2003	I
12	0.11	200	46	4	1.000	Yes	TOB Final Community Preservation Project Plan, 2003	I
13	0.81	200	68	3	6.005	Yes	Additional Recommendation	G
14	1.43	200	68	3	6.006	-	TOB Final Community Preservation Project Plan, 2003	G
15	3.82	200	68	3	6.002	-	TOB Final Community Preservation Project Plan, 2003	G
16	1.33	200	68	1	13.005	-	TOB Final Community Preservation Project Plan, 2003	E
17	1.07	200	68	1	13.006	-	TOB Final Community Preservation Project Plan, 2003	E
18	0.69	200	68	1	11.000	Yes	TOB Final Community Preservation Project Plan, 2003	E
19	0.95	200	46	1	7.002	Yes	TOB Final Community Preservation Project Plan, 2003	G
20	2.03	200	46	1	15.008	-	TOB Final Community Preservation Project Plan, 2003	F
21	1.01	200	46	1	8.002	Yes	TOB Final Community Preservation Project Plan, 2003	G
22	1.83	200	46	1	11.000	Yes	TOB Final Community Preservation Project Plan, 2003	G



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ID	Acres	Dist.	Sec.	Blk.	Lot	Vacant	Source	Drainage Area
							Project Plan, 2003	
23	1.09	200	46	1	10.000	-	TOB Final Community Preservation Project Plan, 2003	G
24	1.12	200	45	1	15.017	-	TOB Final Community Preservation Project Plan, 2003	F
25	1.06	200	46	1	15.012	-	TOB Final Community Preservation Project Plan, 2003	F
26	1.08	200	46	1	15.014	Yes	TOB Final Community Preservation Project Plan, 2003	F
27	3.38	200	67	4	6.000	Yes	TOB Final Community Preservation Project Plan, 2003	E
28	0.40	200	67	4	7.001	Yes	TOB Final Community Preservation Project Plan, 2003	E
29	1.05	200	67	2	7.001	Yes	TOB Final Community Preservation Project Plan, 2003	E
30	0.59	200	66	1	1.014	-	TOB Final Community Preservation Project Plan, 2003	S
31	0.12	200	66	1	1.002	-	TOB Final Community Preservation Project Plan, 2003	S
32	0.20	200	66	1	1.003	-	TOB Final Community Preservation Project Plan, 2003	T
33	0.12	200	66	1	1.004	-	TOB Final Community Preservation Project Plan, 2003	T
34	0.09	200	66	1	1.005	-	TOB Final Community Preservation Project Plan, 2003	T
35	0.07	200	66	1	1.006	-	TOB Final Community Preservation Project Plan, 2003	T
36	23.18	200	67	2	13.000	Yes	Draft NYS Open Space Conservation Plan, 2005	E
37	20.96	200	67	1	7.001	-	Draft NYS Open Space Conservation Plan, 2005	E
38	5.05	200	93	1	6.001	-	Draft NYS Open Space Conservation Plan, 2005	E
39	3.73	200	44	1	2.000	Yes	Additional Recommendation	S
40	0.88	200	8	1	2.000	Yes	Additional Recommendation	N
	87.87	Total						



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If funds are limited, prioritize acquisitions in accordance with criteria designed to optimize the benefit of the acquisition to the Harbor's natural resources. Suggested prioritization criteria are:

1. Vacant lands supporting rare plants or communities, and endangered and/or threatened species;
2. Vacant lands currently supporting or contiguous to wetlands and/or native woodlands and other protected open spaces, subscribing to the "large block" theory of landscape ecology;
3. Vacant lands fronting on certified/open shellfish areas;
4. Vacant lands containing bluffs, beaches or other natural shoreline protective features;
5. Vacant lands that maximize natural resource buffers and preserve the potential for implementing Best Management Practices (i.e. stormwater drainage structures along Pipe Stave Hollow Road);
6. Vacant lands containing ponds or topographic depressions within the Harbor management area because they are prime habitat for shorebirds, wading birds and herpetile species, as well as provide additional stormwater control benefits;
7. Vacant lands containing tributaries, riparian areas or major drainage ways to the Harbor;
8. Vacant lands located in areas where future wastewater collection, treatment and conveyance facilities or major stormwater detention and recharge basins could be built.

Goal #2: Document and Protect the Cultural Resources of Mt. Sinai Harbor

The key objective of this goal is to prevent the loss of important cultural resources (including scenic vistas) that define the Harbor's unique character.

Recommendations:

- Solicit funding to compile a collection of written and photographic documents of the historic and archaeological resources in and around the Harbor. Copies of the collection should be placed in the Town Clerk's Office and the local library.
- Protect historic and archaeological resources from being inadvertently lost or destroyed by:
 - continuing and improving existing subdivision and site plan review processes and building permit procedures;
 - enhancing public education about these resources in local schools and libraries;
 - increasing awareness of these resources on the part of Town employees, particularly within the Building, Planning, Public Works and Zoning departments; and
 - adding archaeological sites to the definition/list of historical sites and resources protected by existing Town and Village legislation.
- Encourage the re-use of historical structures or sites in ways that maintain the historic character of the structure and the area through enhanced public education and review of building permits by the Historic District Advisory Commission.
- Vistas of the Harbor can be seen by walkers and drivers along the roads surrounding the Harbor. Boaters within the Harbor also enjoy views of the shoreline. These are important public access points that should not be neglected or ignored. Improve and manage visual and aesthetic resources around the Harbor by:



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- adopting a lighting policy requiring all lighting within the Harbor management area be shielded downward and be “night-sky” compliant. This policy also will facilitate boater safety while navigating during dusk, evening and early morning hours;
 - encouraging the maintenance of existing indigenous vegetation and habitat;
 - monitoring the extent and vigor of natural and indigenous vegetation;
 - enforcing existing prohibitions against the clear-cutting of trees;
 - ensuring use of appropriate landscape plantings in order to prevent the introduction of invasive species that can out compete native plants and form dense monocultures; and
 - retrofitting overhead utility lines to be underground at key locations such as Shore Road, Pipe Stave Hollow Road and Harbor Beach Road.
- Educate the public about the value of protecting the indigenous landscape through local outlets, such as schools, libraries and horticultural centers as well as local landscapers.

Goal #3: Improve and Protect the Water Quality of Mt. Sinai Harbor

The key objectives of this goal are to redress existing problems with poor water quality as well as to prevent future deterioration of water quality as new development occurs. This goal is linked to the first goal of protecting the natural resources of the Harbor.

Recommendations:

- Reduce the volume and types of nonpoint sources of pollution so that all (or most) of the Harbor consistently meets the State of New York’s *SA water quality standards* for swimming, fishing and shell-fishing by adopting and implementing a long-term strategic management plan to improve the quality of ground and surface waters feeding into the Harbor. This plan should contain the following components:
 - a schedule for cleaning and maintaining existing stormwater drainage and retention facilities on a routine basis;
 - recommended designs and a construction timetable for new or expanded stormwater retention facilities within the drainage area to the Harbor (See **Table 6-2**);
 - a program for monitoring the extent of natural and indigenous vegetation, ground cover and woodlands within and adjacent to the swales of the drainage area around the Harbor;
 - incentives to decrease the extent of existing impervious surface area adjacent to the Harbor and its drainage area;
 - mitigation measures to reduce the impact of necessary impervious surface areas within the drainage area through the use of infiltration, surface detention basins, dry wells, trench drains and other types of structures that retain, filter and recharge stormwater, (Specific recommended projects are contained in **Table 6-2**);
 - introduction of Best Management Practices to reduce the direct flow of stormwater into the Harbor and to improve the quality of the runoff to the Harbor;
 - educational programs and regulations about the use of pesticides, herbicides and fertilizers within the Harbor management areas (see **Appendix G**);
 - continue and expand existing water quality monitoring programs of the Suffolk County Department of Health Services and the New York State DEC to determine the effectiveness of stormwater mitigation measures after they are constructed or installed; and



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- promote local organic landscape care, including use of compost material from the Town of Brookhaven's Compost Facility.
- Delineate fresh and tidal wetlands before designing and constructing proposed stormwater improvement projects.
- Maintain and improve surface water quality within the Harbor through the creation of a State and federally recognized *No-Discharge Zone* encompassing the entire Harbor within which boaters may not dispose of waste material through their boat bilges, holding tanks or marine toilets.
- Encourage use of existing and proposed pump-out stations by:
 - providing the service for free or for a low fee;
 - provide pump-out location and operation hours with docking/mooring permits;
 - establishing a regular schedule for the pump-out boat to service vessels at permanent or transient moorings;
 - providing access to either the pump-out boat or the station during winter months, particularly by commercial fishing boats; and
 - increase signage denoting the location of pump-out stations and the hours of operation, particularly near fueling docks and the marinas.
- Require all new commercial and residential construction within the Harbor management area to retain all stormwater on-site through the use of dry wells, trench drains, rain gardens and other BMP methods.
- Adopt incentives to encourage property owners to use BMPs for stormwater management for pre-existing construction.
- Require "curb cut" permits from the Brookhaven Highway Department for the construction, relocation or paving of impervious driveways in order to ensure proper stormwater retention onsite (and not directed onto existing streets or drainage swales leading to the Harbor).
- Encourage pervious surfaces and driveways within the Harbor management area whenever possible.
- Require the installation of erosion and sediment controls during all new construction and alterations involving site re-grading within the Harbor management area.
- Request the Suffolk County Board of Review to give special consideration to Article 6 waivers in the Mt. Sinai Harbor drainage area with respect to ground and surface water quality impacts to this sensitive marine sanctuary.



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Goal #4: Balanced Management of Water and Land Uses of Mt. Sinai Harbor

The key objective of this goal is to ensure that intensive human uses of the Harbor and its surrounding lands do not overwhelm the natural ecosystem's ability to function optimally.

Recommendations:

- Adopt a Marine Sanctuary Overlay District that addresses the following concerns:
 - protection of the shallow portions of the Harbor outside the Town of Brookhaven's designated mooring area and navigation channel from use by motorized water craft;
 - prohibit the construction of new docks, bulkheads, groins and piers on private property;
 - restrictions against any motorized boat use south of the existing mooring areas; and
 - establishment of building permit and land use application review criteria within the Harbor management area and drainage area boundary:
 - install leaders, gutters, and drywells for increases in roof area surfaces;
 - require driveway drainage structures be installed to catch stormwater runoff from residential properties before it drains onto streets leading to the Harbor;
 - establish limitations on fertilized landscape areas;
 - establish limitations on tree clearing of land; and
 - minimize grading to the maximum extent possible.
- Maintain and enhance the current capabilities of existing public access points (ramps, docks, piers, roads, parks) to the water.
- Add additional water access points only where appropriate and where environmental protection can be ensured (suggested access points are identified in **Figure 5-2** and noted below):
 - redesign the cul-de-sac at the eastern terminus of Crystal Brook Road to reduce impervious surface, improve stormwater retention, add parking, provide dinghy storage racks and a dinghy access ramp to the adjacent mooring area; and
 - create a fishing access area at the junction of Harbor Beach Road and Pipe Stave Hollow Road.
- Add additional public access points where appropriate (suggested access points are identified in **Figure 5-2** and noted below):
 - create trailheads at the Harbor Inlet, Chandler Estate property, Satterly Landing, Village Property and Crystal Brook Road cul-de-sac;
 - develop a pedestrian trail that extends from Cedar Beach Marina to the Chandler Estate property, from the east side of Shore Road to Satterly Landing, and from the Crystal Brook Road cul-de-sac to the former Grist Mill site; and
 - explore working with the Village of Port Jefferson to open parking to the general public (rather than just Village residents) on the Village Property near Ronald Court at the proposed trail head.
- Protect prime marine habitat by maintaining the existing boundaries of the mooring field and not allowing it to expand.
- Continue monitoring the proper use of mooring permits through on-site inspections.



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- Ensure safe recreational boating by clearly posting speed limit signs, encouraging boater safety courses by the US Coast Guard Auxiliary, and posting a telephone number for the Harbor Master so that citizens can report sitings of excessive speeding within the Harbor.
- Post signage prohibiting the use of motor boats and jet skis south of the main navigation channel in the Harbor in order to protect the Harbor's eroding vegetated wetlands and maintain the character of the Harbor as a Marine Sanctuary.
- Continue to provide accessory services needed by the traditional commercial and recreational fishery operations within Mt. Sinai Harbor, (e.g. marine repair, ice, bait and other marine supplies, etc).
- Utilize existing shellfish hatchery facilities at Nature Center and Park Maintenance Facility to full capacity.
- Continue to allow duck hunting to take place in accordance with existing State regulations and local policies.
- Maintain and enhance existing *appropriate* water-dependent land uses adjacent to Mt. Sinai Harbor by limiting the use of Village-owned property (zoned Marine Waterfront) adjacent to the Harbor to the following types of uses:
 - *water-dependent* uses such as a kayak launching ramp, recreational non-motorized boat rental, a bird-watching station, handicapped-accessible gazebo, trails and elevated boardwalks through wooded wetland areas;
 - *water-enhanced* recreational and accessory uses, such as a small café, or a small Harbor-oriented museum; and
 - appropriate low-impact, limited parking areas to facilitate above activities.
- Avoid unnecessary dredging of the Harbor inlet by maintaining minimum appropriate depths for safe boat access.
- Continue to place compatible dredged material on the west side of the inlet.
- Explore alternative designs for the jetty entrance that would permit sufficient amounts of sand to pass across the inlet entrance westward in order to maintain the littoral drift of sand to beaches (within the incorporated villages of Port Jefferson and Belle Terre) and to reduce frequency of dredging.
- Coordinate with the New York State Department of State and the U.S. Army Corps of Engineers regarding the design, construction, and available funding for the re-building of the existing or an alternative jetty design.
- Improve and promote passive, water-dependent recreational and educational opportunities around the Harbor by expanding public recreational opportunities without stressing the marine or Harbor-side environment, such as:
 - environmentally-sensitive walking paths and boardwalks;



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- bird watching stations;
- scenic outlooks or gazebos for use by walkers, photographers and artists;
- permeable bike paths and attractive storage racks for bicycles near existing benches and tables at existing park sites, preferably near existing and proposed walking/bicycling trails and small boat launching ramps;
- small canoe/kayak/dinghy/sailboat launching pads near small pervious parking areas located within a short distance of the Harbor shoreline;
- a pedestrian trail along Harbor Beach Road and Shore Road with possible connections to the Tallmadge Trail and proposed trails within the Suffolk County Chandler Estate property (see **Figure 5-2**);
- alternative (e.g. dry or clivus multrum) restroom facilities at key trailheads, scenic overlooks and launching pads; and
- marked bike lanes along Harbor-front roads.

Goal #5: Improve Public Awareness of Mt. Sinai Harbor through Education

The key objective of this goal is to enable the residents living around the Harbor and the people who use the Harbor to help understand and protect the environmental, cultural and scenic resources they enjoy. In an era of increasing costs and limited governmental resources, the burden of protecting public land and environmental resources will be more effectively shared by the people who use and enjoy those resources.

Recommendations:

- Promote public understanding of the Harbor's environmental and cultural resources, including Mt. Sinai's history and how human activities have impacted the Harbor (i.e. signage along trails, nature center exhibits, special presentations/talks, etc.).
- Promote environmental stewardship by property owners and users of the Harbor by:
 - providing new homeowners (within the boundary of the drainage area) with informational packets concerning the environmental and cultural resources around them (i.e. materials located in **Appendix G**);
 - encouraging homeowners to report archaeological finds within their yards to the Town of Brookhaven's Department of Environmental Protection;
 - providing Best Management Practices (BMP) pamphlets for stormwater, lawn care and home maintenance;
 - encouraging use of mulch and compost from Brookhaven's Composting Facility; encouraging use of the Town's leaf pick-up program and the STOP (Stop Throwing Out Pollutants) program;
 - handing out education material each year with the permits for dock permits, shellfish permits, mooring permits, beach parking permits and dog licenses;
 - partnering with existing organizations, such as Boy Scouts, Girl Scouts, gardening clubs, yachting clubs, business networking groups (e.g. Lions, Rotary, Kiwanas, etc.), sporting groups (e.g. Ducks Unlimited) to sponsor clean-up programs and outreach efforts;
 - contracting with Cornell Cooperative Extension to prepare educational materials in different media (e.g. videos, print, television, radio) and for use with different audiences (e.g. school-aged youth, recreational boaters, property owners, retailers, sports outlets);
 - promoting and enhancing the Nature Center's existing programs and exhibits; and



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- hiring additional staff or year-round volunteers for the Nature Center.
- Promote public education efforts for Harbor users and surrounding land owners by providing educational materials that focus on:
 - environmentally-friendly boat cleaning products;
 - appropriate lawn care and maintenance practices;
 - regular septic system maintenance/ pump outs;
 - use of the words “Marine Sanctuary” in key signage and literature; and
 - use of Brookhaven Town’s STOP (Stop Throwing Out Pollutants) program.
- Establish public participation programs that focus on practical ways to reduce nonpoint source pollution:
 - Drainage catch basins within the Harbor management area should be marked with a logo distinctive to the Harbor (and its Marine Sanctuary status) to remind people that all waters empty into the bay, and by association, the fish and shellfish therein;
 - Reminders should be posted within the primary and secondary drainage areas of the value of picking up after dogs;
 - Establish pet stations (e.g. plastic bags and garbage cans) at entrances to the most heavily used parks and trails along the shoreline to encourage proper disposal of pet feces;
 - Provide boat owners with a free bilge sock and boat maintenance information when dock and mooring permits are issued;
 - Encourage the use of environmentally friendly products at marine stores located within the Town of Brookhaven and the Village of Port Jefferson;
 - Institute an ongoing program at the local marinas and yacht club about the types of boat cleaning and maintenance products that can have deleterious effects on the marine environment and the marine sanctuary status of Mt. Sinai Harbor;
 - Involve schools, scouting and other groups of young people in the ongoing maintenance and improvement of the Harbor and its bordering park lands and trails, (i.e. Spring and Fall maintenance and clean-ups, monthly litter pick-up runs, etc.); and
 - Allow local organizations and business groups/associations to sponsor the information plaques and to underwrite the addition (and maintenance of) landscaping by permitting recognition of their monetary contribution towards the signage on the sign (e.g. Marine Sanctuary Protection Program: Highway Mile Sponsors).
- Establish educational opportunities to expand the shellfish program at the Nature Center, such as a volunteer program whereby interested people can learn to cultivate clams, oysters and scallops from spats to maturity, similar to successful programs currently in place through Cornell Cooperative Extension, including its SPAT program in the Town of Southold. The intent of such programs is to not only broaden participants’ understanding of how easily shellfish habitat can be destroyed by careless upland land use practices, but enable participants to actively cultivate shellfish for their own consumption. The programs typically require all participants to “pay back” to the program (e.g. half of the shellfish they grow to maturity).





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6.0 IMPLEMENTATION STRATEGY



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6.0 IMPLEMENTATION STRATEGY

The following implementation strategy is designed to make the Mt. Sinai HMP a reality. This strategy essentially consists of a schedule of specific activities, capital projects and policy or legislative actions that need to be enacted and implemented in order to ensure adequate management of the Harbor in accordance with this plan. Each of the strategy points listed here flows from the Recommendations set forth in **Section 5.0** above.

Mt. Sinai Harbor lies within multiple governmental jurisdictions, and each agency is responsible for a different type of activity that affects the harbor. This HMP is designed to facilitate inter-governmental coordination and cooperation among these agencies so as to ensure that all actions work to the benefit of the Harbor. The purpose of this section is to identify the sphere of jurisdiction exercised by each relevant agency, as well as to identify the specific actions that agency can take to help implement the recommendations set forth in **Section 5.0**.

This Section is divided into three sub-sections, each dealing with a different aspect of implementation. **Section 6.1** identifies the governmental jurisdictions that will have a role in implementing the Mt. Sinai Harbor HMP and categorizes the actions they must take. Sub-section 6.2 includes a schedule for the stormwater management projects and actions that need to be completed in order to maintain and improve water quality within the Harbor. The last sub-section, 6.3, lists potential funding sources which the Town and Village should review when seeking financial assistance to implement the recommended actions.

6.1 Implementation Actions According to Governmental Jurisdiction

Table 6-1 identifies each of the applicable governmental jurisdictions beginning with the local on up through the federal level. Although the HMP will guide federal, state and local actions in accordance with the New York State Coastal Zone Management Act, it will not be binding on the County of Suffolk. However, there is a long history of constructive cooperation between the County and the Town of Brookhaven on environmental issues. For that reason, the county has been included in **Table 6-1**.



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**TABLE 6-1
IMPLEMENTATION STRATEGY FOR MT. SINAI HARBOR:
JURISDICTIONS & ACTIONS**

Implementation Jurisdiction	Nature of Implementation Action				
	Legislative Actions	Enforcement Actions	Operational & Budgeting Actions	Intergovernmental Action	Educational Actions
Town Of Brookhaven (TOB)	<ol style="list-style-type: none"> Petition the NYSDEC to designate the Harbor as a “No Discharge Zone.” Adopt “Night Sky” legislation to encourage the shielding and diffusing of existing and new lighting along the shoreline, reduce glare on the water, and improve night vision, particularly for boaters operating during dawn, dusk and evening hours. Take the lead in developing a <i>Dredging Management and Material Deposition Plan</i> in cooperation with the U.S. Army COE, the SC DPW, the NYSDEC, the NYSDOS and the Village of Port Jefferson by 2014, in preparation for applying for the next ten-year dredging permit from the U.S. Army COE. Prioritize potential open space areas within the management area for acquisition. Amend the Brookhaven CPPP and map (as per authorizing legislation) to include the eight additional parcels recommended in Section 5.0. Accelerate acquisition of properties within management area. Set up a Mt. Sinai Harbor Resource Archive within the Town Clerk’s office. Empower the Historic District Advisory Committee with the ability to review applications for re-use of historic structures and to provide information to property owners on how to maintain historic character of their structures while modernizing them. Establish a Marine Sanctuary Overlay District, as recommended in Section 5.0, Goal #4. 	<ol style="list-style-type: none"> Continue to enforce the 5 MPH Speed Limit for reasons of safety and to reduce wake/wave impacts to the tidal marsh vegetation. Continue to enforce existing clear-cutting regulations. Enforce erosion and sediment controls during new construction and alterations involving site regrading. Continue to maintain and enforce existing boundaries of mooring field and use of approved tackle. 	<ol style="list-style-type: none"> Continue to provide necessary staffing for the Town operated pump-out boat. Enhance the ability of the Town’s Environmental Protection Department, and its Waterways Division, to manage, restore, enhance and protect wetlands, and the habitats of terrapins, horseshoe crabs and shellfish. Continue to maintain and, if necessary, improve navigational aids at the jetties, inlet and channel (in cooperation with the U. S. Coast Guard when pertinent). Shield and diffuse all existing lighting at Cedar Beach to reduce glare on the water, and improve night vision, particularly for boaters operating during dawn, dusk and evening hours. Ensure adequate staffing and funding to maintain and expand existing environmental education programs at the Nature Center. Enhance public safety and security concerns around the marina by adding shielded lighting and evaluating the feasibility of pass-key security systems for access to docks and rest rooms after hours by dock and mooring permit holders. Adopt a schedule (and capital budget) for improving existing Stormwater Runoff Retention Systems and constructing new ones. Specific recommendations are in Table 6.2. Establish a fishing access point in the eastern portion of the Harbor (see Figure 5-2). Establish shoreline trails as recommended in Section 5.0, Goal #4 (see Figure 5-2). Eradicate or reduce extent of invasive vegetation (e.g. <i>Phragmites australis</i>) within the Harbor management area, particularly at the north end of Crystal Brook Pond. 	<ol style="list-style-type: none"> Enhance the Town’s shellfish hatchery and seeding program by teaming with other interested entities to expand the existing program, utilize existing facilities to their full potential and encourage public participation in the hatching, seeding and grow-out phases of shellfish management. Work with the NYSDEC, NYSDOS and the SC Parks to design, locate and construct environmentally sensitive trail networks and a fishing access point in the eastern portion of the Harbor. Initiate coordination with Suffolk County Parks Department to integrate recommendations of the Mt. Sinai HMP regarding trail connectivity into the Chandler Estate Management Plan. Work with NYSDEC and NYSDOS to access funding sources for research, planning, acquisition, historic preservation and protection activities. Meet regularly with SCDHS and its BOR to discuss long-term goals for the protection and enhancement of Mt. Sinai Harbor. Encourage scientific research into the Harbor’s natural habitat, species and ecology. Coordinate with the NYSDOS and U.S. Army COE regarding the design, construction, and available funding for the re-building of the existing jetty or design of an alternative jetty configuration that allows for continued use of the jetty as a fishing pier and facilitates the passage of sand westward toward the Village beaches. 	<ol style="list-style-type: none"> Encourage boaters within the Harbor to use pump-out stations. Develop and publicize a regular schedule for pump-out boat to visit moored vessels within the Harbor. Improve and add additional speed limit signage along with explanations for the limits. Continue to tap into the knowledge and enthusiasm of local residents interested in protecting Mt. Sinai Harbor and its environmental, cultural and scenic resources as well as educating residents and visitors about the Harbor’s uniqueness. Maintain and expand existing environmental education programs at the Nature Center.



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Implementation Jurisdiction	Nature of Implementation Action				
	Legislative Actions	Enforcement Actions	Operational & Budgeting Actions	Intergovernmental Action	Educational Actions
Village Of Port Jefferson (Village of PJ)	<ol style="list-style-type: none"> 1. Support the Town of Brookhaven’s petition to the NYSDEC to designate the Harbor as a “No Discharge Zone.” 2. Enact “Night Sky” legislation coterminous with Brookhaven Town in order to encourage the shielding and diffusing of existing and new lighting along the shoreline, reduce glare on the water, and improve night vision, particularly for boaters operating during dawn, dusk and evening hours. 3. Designate and limit the use of Village-owned property (zoned Marine Waterfront) as a park for low-impact water-dependent or water-enhanced uses (i.e. kayak launching ramp, recreational non-motorized boat rental, trailhead, small café, small Harbor-oriented museum, appropriate low-impact and limited parking areas). 4. Explore the designation of the Village-owned property near Ronald Court as a trail head to allow public access to the park on this property for the purpose of accessing the hiking trails along Mt. Sinai Harbor. 		<ol style="list-style-type: none"> 1. Redesign parking lot at the sound-front beach to allow the installation of a landscaped buffer and boardwalk behind the rip rap along the beach. Convert the asphalt sound front parking lot to a permeable surface to reduce direct discharge of stormwater onto the beach. 2. Redesign the cul-de-sac at the eastern terminus of Crystal Brook Road to channel access, restore wetland vegetation, improve stormwater retention and enhance aesthetics. 3. Redesign the volleyball court to reduce impact on dune vegetation. 4. Redesign and pull back the concrete bulkhead and gazebo station to allow better sand transport along the sound front beach. 5. Adopt a schedule (and capital budget) for improving existing Stormwater Runoff Retention Systems and constructing new ones within the Village borders. Table 6-2 contains specific recommendations for stormwater improvements. 6. Eradicate or reduce extent of invasive vegetation (e.g. <i>Phragmites australis</i>) within the Harbor management area. 	<ol style="list-style-type: none"> 1. Work with the TOB in developing a <i>Dredging Management and Material Deposition Plan</i> in cooperation with the U.S. Army COE, the SC DPW, the NYSDEC and the NYSDOS by 2014, in preparation for applying for the next ten-year dredging permit from the U.S. Army COE. 2. Work with the NYSDEC and the NYSDOS to obtain funds and technical assistance for the following projects: <ul style="list-style-type: none"> o redesign parking lot at the sound front beach to allow the installation of a landscaped buffer and boardwalk behind the rip rap along the beach; o convert the asphalt sound front parking lot to a permeable surface to reduce direct discharge of stormwater onto the beach; o redesign the volleyball court to reduce impact on dune vegetation; and o redesign and pull back the concrete bulkhead and gazebo station to allow better sand transport along the sound front beach. 3. Coordinate with the Town on public education programs focused on the Harbor. 	<ol style="list-style-type: none"> 1. Encourage boaters within the Harbor to use pump-out stations. 2. Develop and publicize a regular schedule for pump-out boat to visit moored vessels within the Harbor. 3. Continue to tap into the knowledge and enthusiasm of local residents interested in protecting Mt. Sinai Harbor and implementing this HMP. 4. Advise Golf Course Management of the benefits of integrated pest management programs to the Harbor, particularly the part of the course that lies within Drainage area “R”.
Suffolk County Department of Public Works (SC DPW)			<ol style="list-style-type: none"> 1. Continue to oversee dredging that started during the Fall of 2005 and to monitor the situation throughout the life of the current permit (2005-2015). 2. Keep dredging limited to the minimum necessary for safe passage of vessels from the Harbor inlet and navigation channel to the marinas and the mooring fields. 	<ol style="list-style-type: none"> 1. Coordinate with U.S. Army COE earlier in the permit application process for the next permit (2015-2025) so as to explore new ideas for breakwater design that might facilitate sand transport across the inlet mouth, thus minimizing the need for extensive future dredging. 2. Work with the TOB and the Village of PJ in developing a <i>Dredging Management and Material Deposition Plan</i> in cooperation with the U.S. Army COE, NYSDEC and the NYSDOS by 2014, in preparation for applying for the next ten-year dredging permit from the U.S. Army COE. 	



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Implementation Jurisdiction	Nature of Implementation Action				
	Legislative Actions	Enforcement Actions	Operational & Budgeting Actions	Intergovernmental Action	Educational Actions
Suffolk County Department of Parks (SC Parks)			<ol style="list-style-type: none"> 1. Develop passive recreational trails and education materials for the former Chandler Estate to facilitate views and enjoyment of the former Ice Pond and Mt. Sinai Harbor. 2. Eradicate or reduce extent of invasive vegetation (e.g. <i>Phragmites australis</i>) on the Chandler Estate. 	<ol style="list-style-type: none"> 1. Coordinate and cooperate with the TOB to obtain State funding to help finance the creation of trails and materials for the former Chandler Estate. 2. Continue acquisition of park lands and historic properties within the Management Area. 	
Suffolk County Department of Planning (SC Planning)			<ol style="list-style-type: none"> 1. Continue to assist the Town in acquiring open space and other land within the Harbor Management Area using funds from County open space and water quality protection programs. 		
Suffolk County Department of Health Services (SCDHS)			<ol style="list-style-type: none"> 1. Continue to administer Article 6 of the Suffolk County Sanitary Code in order to protect ground and surface water quality within the Harbor. 2. Direct the Board of Review to consider whether waiver requests within the contributing watershed area of Mt. Sinai might result in increased density (and loading). 3. Continue to monitor and control pollutant sources. 	<ol style="list-style-type: none"> 1. Support the Town of Brookhaven's petition to the New York State Department of Environmental Conservation to designate the Harbor as a "No Discharge Zone." 2. Share findings of ongoing monitoring programs with the Town on an annual basis. 	
New York State Department of State (NYS DOS)				<ol style="list-style-type: none"> 1. Facilitate use of funding from Environ. Protection Fund and the Environmental Quality Bond Act within Mt. Sinai Harbor. 2. Support the Town of Brookhaven's petition to the NYSDEC to designate the Harbor as a "No Discharge Zone." 	



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Implementation Jurisdiction	Nature of Implementation Action				
	Legislative Actions	Enforcement Actions	Operational & Budgeting Actions	Intergovernmental Action	Educational Actions
New York State Department of Environmental Conservation (NYSDEC)		<ol style="list-style-type: none"> 1. Continue to enforce quotas for the harvesting of horseshoe crabs within the Harbor. 	<ol style="list-style-type: none"> 1. Continue existing monitoring programs for horseshoe crabs, lobsters, shellfish and other fisheries. 2. Continue to study loss of tidal wetlands within Mt. Sinai Harbor and to determine causative factors. 3. Continue to implement Article 25 Tidal Wetlands regulations (6 NYCRR 661). 4. Support ongoing scientific research on the Harbor's natural habitat, species and ecology. 	<ol style="list-style-type: none"> 1. Facilitate use of funding from Environmental Protection Fund and the Environmental Quality Bond Act within Mt. Sinai Harbor. 2. Cooperate with the Town to design and locate trails (and boardwalks) adjacent to heavily trafficked portions of the tidal wetlands in order to provide public access yet protect sensitive shoreline species from damage. 3. Support the Town of Brookhaven's petition to designate the Harbor as a "No Discharge Zone." 4. Coordinate with the Town and Village in developing a <i>Dredging Management and Material Deposition Plan</i> in cooperation with the SC DPW, the NYSDOS and the U.S. Army COE by 2014, in preparation for applying for the next ten-year dredging permit from the U.S. Army COE. 5. Prioritize potential open space areas eligible for acquisition using State funding sources 6. Work with the Town to design, locate and construct an environmentally sensitive fishing access point in the eastern portion of the Harbor to protect the wetland from being trampled by foot and boat traffic on the shoreline. 	
United States Department of Defense, U.S. Army Corps of Engineers (U.S. Army COE)			<ol style="list-style-type: none"> 1. Continue implementation of Section 404, Clean Water Act. 2. Continue to provide technical expertise regarding the management of sand and sediment transport within the inlet and navigation channel. 3. Continue to support beach nourishment efforts westward of the Harbor entrance. 	<ol style="list-style-type: none"> 1. Support efforts to improve the design of the inlet entrance to facilitate greater sand transport across the mouth and reduce need for dredging. 2. Coordinate with Town and Village to develop a <i>Dredging Management and Material Deposition Plan</i> in cooperation with the SC DPW, NYSDEC and NYSDOS by 2014, in preparation for issuance of the next ten-year maintenance dredging permit from the COE. 	



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6.2 Implementation Strategy for Stormwater Runoff Retention

Table 6-2 identifies recommendations for stormwater improvements within the subwatersheds that drain into Mt. Sinai Harbor. As funding for stormwater improvements is often limited, the recommendations are also ranged in terms of priority for implementation based on the field observations of the greatest areas of concern (Priority 1: Year 1-5, Priority 2: Year 5-10 and Priority 3, Year 10-15).

Before structural measures are implemented, a qualified and experienced professional should delineate and flag wetland areas near the proposed stormwater remediation projects noted in **Table 6-2**. The inspection of each proposed Best Management Practice or new retention facility should include the following components: locate the tidal wetlands boundary, measure water depths at various locations, if necessary conduct reviews of existing site conditions, catalog vegetative species, collect photographic documentation as well as land-use and geographical details for completion of environmental forms. In addition, coordination with survey crew will be required for field location of wetland boundary and high and low water levels or if areas are sufficiently open, Global Positioning System (GPS) could be utilized.

TABLE 6-2 RECOMMENDED SCHEDULE FOR STORMWATER MANAGEMENT IMPROVEMENTS WITHIN THE MT. SINAI HARBOR DRAINAGE AREA

Drainage Area(s)	Recommended Improvements	Target for Completion
A to D	<ul style="list-style-type: none"> ▪ Ongoing maintenance of catch basins. 	Seasonally, as necessary
E & M	<ul style="list-style-type: none"> ▪ Cleanout and regular maintenance of storm drains/dry wells located along Shore Road. ▪ Intercept stormwater flows along Old Post Road (west of the intersection of Shore Road) by adding additional stormwater storage containment (catch basins and leaching pools) to capture runoff which presently flows down hill (towards the intersection of Old Post and Shore Road and into the Harbor). ▪ Evaluate feasibility of installing a stormwater retention facility within the parcel of Town owned land immediately north of the intersection of Old Post Road and Shore Road. ▪ Initiate a regular maintenance program for all existing and recommended stormwater collection and discharge facilities to ensure their continued efficiency and effectiveness. 	Priority 2 (Seasonal catch basin maintenance)



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F & G	<ul style="list-style-type: none"> ▪ Cleanout and regular maintenance of storm drains/dry wells to increase their efficiency and effectiveness. ▪ Install a shoreline barrier berm, swale and shallow stormwater containment system along sections of Shore Road immediately adjacent and parallel to the Harbor (NYS-1) to reduce erosion and limit the direct discharge of stormwater runoff and deposition of sediment into the Harbor (particularly on the west side of Shore Road across from Eagles Landing and on the north facing section of Shore Road east of Satterly Landing and the informal boat ramp). Examples of shallow stormwater containment systems include linear perforated piping and linear infiltrator systems surrounded by gravel. ▪ Install additional stormwater leaching catch basins at the intersection of Shore Road and Harbor Cove. ▪ Install a rolled curb or trench drain across the access to the unnamed/informal boat launch on the north side of Shore Road to improve catchment and retention of stormwater runoff from entering the Harbor in this area. ▪ Add additional catch basin and leaching pool containment structures on Rocky Hill Road to reduce the volume of unfiltered flow that reaches Shore Road and overflows to the Harbor and adjacent wetland area. ▪ Require the installation of drainage structures for all new driveways or paving of driveways for properties which front Shore Road. 	Priority 1 (Seasonal catch basin maintenance)
H	<ul style="list-style-type: none"> ▪ Initiate a regular maintenance program for all existing and recommended stormwater collection and discharge facilities to ensure their continued efficiency and effectiveness. 	Seasonal catch basin maintenance
I	<ul style="list-style-type: none"> ▪ Initiate a regular maintenance program for all existing and recommended stormwater collection and discharge facilities to ensure their continued efficiency and effectiveness. ▪ Stabilize and berm the west side of Pope Stave Hollow Road in the vicinity of George St. Add drainage structures as necessary to collect and recharge stormwater in this area. 	Priority 3 (Seasonal catch basin maintenance)
J & K	<ul style="list-style-type: none"> ▪ The section of Pipe Stave Hollow Road which runs north adjacent to the Harbor has evidence of undermining and high tides washing into the roadway during wind and storm events. Shoreline drainage improvements including a shoreline barrier berm, swale and shallow stormwater containment system should be installed to reduce erosion and limit the direct discharge of stormwater runoff and deposition of sediment into the Harbor. Portion of the shoreline require reinforcement with rip-rap, gabions or other stabilization techniques to eliminate the potential washout. ▪ Install stormwater drainage structures at the base and upper portions of Cedar Drive to reduce runoff to Pipe Stave Hollow Road and the Harbor and standing water conditions at the base of Cedar Drive. ▪ Require the installation of drainage structures for all new driveways 	Priority 1 (Seasonal catch basin maintenance)



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	<p>or paving of driveways for properties which front Pipe Stave Hollow Road.</p> <ul style="list-style-type: none"> ▪ Cleanout and regular maintenance of storm drains/dry wells to increase their efficiency and effectiveness. 	
L & N	<ul style="list-style-type: none"> ▪ Cleanout and regular maintenance of storm drains/dry wells to increase their efficiency and effectiveness. ▪ Install a shoreline barrier berm, swale and shallow stormwater containment system along Harbor Beach Road immediately adjacent and parallel to the Harbor to reduce erosion and limit the direct discharge of stormwater runoff and deposition of sediment into the Harbor. No drainage structures currently exist along this stretch of Harbor Beach Road and depth to groundwater is a limiting factor. Shallow stormwater containment systems such as linear perforated piping and linear infiltrator systems surrounded by gravel are recommended where possible. 	Priority 2 (Seasonal catch basin maintenance)
O	<ul style="list-style-type: none"> ▪ The major priority area in Drainage Area O was the parking area at Cedar Beach, which previously was slopped to direct stormwater directly into the Harbor. During the preparation of this Master Plan, the Town allocated funding and completed an overhaul of the Cedar Beach Marina Parking area including regarding of the parking area, installation of drainage facilities throughout the parking area and shoreline restoration and plantings. These improvements significantly reduced stormwater runoff into the Harbor in this area. ▪ Cleanout and regular maintenance of storm drains/dry wells to increase their efficiency and effectiveness. 	Seasonal catch basin maintenance
P & Q	<ul style="list-style-type: none"> ▪ The roads in these drainage areas presently have adequate drainage infrastructure to capture road runoff, however many individual dwellings in this area are built on relatively steep slopes adjacent to the Harbor and have paved driveways without drainage. The installation of drainage structures for all new driveways should be required for properties fronting the Harbor. ▪ Review all new subdivision and building permit applications to require drainage design and retention of all runoff on site. ▪ Cleanout and regular maintenance of storm drains/dry wells to increase their efficiency and effectiveness. 	Seasonal catch basin maintenance
R	<ul style="list-style-type: none"> ▪ Reduce area of the existing cul-de-sac (terminus of Crystal Brook Hollow Road), install curbing and linear stormwater retention structures (to replace existing catch basins discharge directly to the Harbor) or bioretention area and shoreline improvements to reduce direct runoff to the Harbor. See Figure 6-1. ▪ Add additional shallow linear drainage structures at the base of Waterview Drive and Crystal Brook Hollow Road to reduce overland flow into the Harbor. ▪ Cleanout and regular maintenance of storm drains/dry wells to increase their efficiency and effectiveness. 	Priority 1 (Seasonal catch basin maintenance)



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S & T	<ul style="list-style-type: none"> ▪ Investigate the possibility of curbing or berming and adding drainage retention (with large storm overflows) to the seaward side of Crystal Brook Hollow Road north of Old Post Road and south of Oakwood Road to reduce direct runoff to the Town of Brookhaven owned wetland areas in the south western portion of the Harbor. ▪ Investigate use of the Village of Port Jefferson owned property on the west side of Crystal Brook Hollow Road (south of Oakwood Road) for drainage retention from Crystal Brook Hollow Road. ▪ Cleanout and regular maintenance of storm drains/dry wells to increase their efficiency and effectiveness. 	Priority 2 (Seasonal catch basin maintenance)
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6.3 Implementation Strategy for Trail Connectivity

New trail segments are proposed around Mt. Sinai Harbor in order to improve and expand passive water-dependent and water-enhanced recreational and educational opportunities for the public without stressing the ecological environment in key locations surrounding the Harbor: Crystal Brook Trail, Shore Road Trail, and Tallmadge Trail. The locations of the proposed trails are depicted in **Figure 5-2**. These hiking trails, boardwalks and walking paths should be pursued with environmentally-sensitive designs and include elements such as bird watching stations, scenic outlooks or gazebos, pervious pavement for road shoulders, and attractive storage racks for bicycles near existing/proposed park sites and non-motorized boat launching ramps. Descriptions of the proposed trails are provided below with samples trail concepts.

Crystal Brook Trail

The Crystal Brook Trail is recommended from the former grist mill site at Crystal Brook Hollow to the Crystal Brook Road cul-de-sac in the Village of Port Jefferson. A trailhead would be located at the mid-point (Village-owned property across from Ronald Court) and at each end of the trail. Space for vehicle parking currently exists on the Village-owned property and potential also exists for locating an appropriate water-dependent or water-enhanced use on this parcel, such as a recreational non-motorized boat rental facility, handicapped-accessible gazebo or bird-watching station, small café, or a small Harbor-oriented museum. However, parking at the Village-owned property is currently limited to Village residents. The Town should explore the opening of the parking at this location to the general public to enable expanded use of the trail system. The cul-de-sac terminus of Crystal Brook Road in the Village of Port Jefferson is frequently used as a scenic overlook and for waterfront access; however no formal access point or dinghy storage exists. The shoreline adjacent to the cul-de-sac experiences erosion and pavement damage due to wave action, loss of shoreline vegetation, foot traffic, and the storage and dragging of dinghies and other small boats on the shoreline. The road end does not serve as primary access to adjacent homes and can be gated to limit vehicular access under current conditions. **Figure 6-1** illustrates a conceptual design for improving the cul-de-sac by reducing pavement area and installing proper drainage (reducing direct stormwater discharge into the Harbor), construction of a formalized water access path and car to boat access area, addition of a picnic area, trash and pet waste station, and landscaping with native shoreline species. The cul-de-sac would also serve as a trailhead for the Crystal Brook Trail. The portion of the cul-de-sac

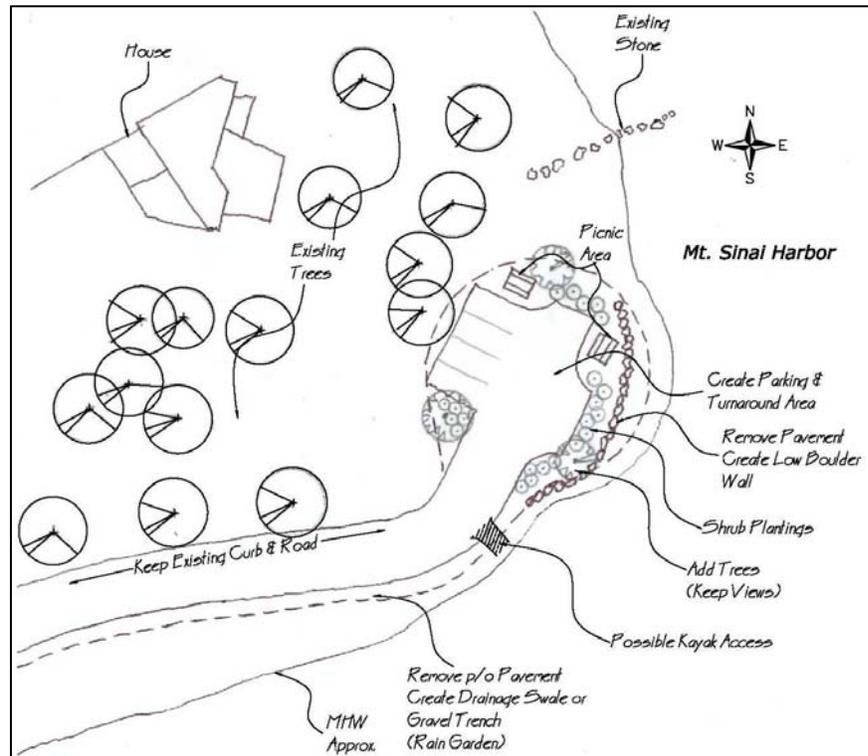


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most vulnerable to storm damage would be pulled back to create a useable, more aesthetic and environmentally compatible road end. The improvements should be coordinated with the Village of Port Jefferson Highway Department to ensure that maintenance and use goals can be achieved.

Figure 6-1. Conceptual Improvements at Crystal Brook Road Cul-de-Sac.



Source: Conceptual Sketch by Charles Voorhis, NP&V (not to scale)

Shore Road Trail

The proposed Shore Road Trail would originate at Satterly Landing and continue eastward as a cantilevered boardwalk (**Figure 6-2**) along the north side of Shore Road, abutting Mt. Sinai Harbor. Limited land area exists between the road and the Harbor and associated wetlands in this area; therefore a cantilevered walkway in association with shoreline and drainage improvements could be considered for portions of the trail. Vehicular parking, a bicycle rack and bench currently exist at this proposed trailhead.

Tallmadge Trail

The proposed Tallmadge Trail would originate near the boat ramp at Cedar Beach Marina, continue eastward (via elevated boardwalk) along the south side of Harbor Beach Road and south along the seaward shoulder of Pipe Stave Hollow Road to the former ice house on the Chandler Estate Property. **Figure 6-3** provides a conceptual trail cross section for those areas where adequate area exists between the Harbor shoreline and adjacent roadway. Cantilevered walkways may also be necessary for narrower portions of the trail. The Chandler Estate Property

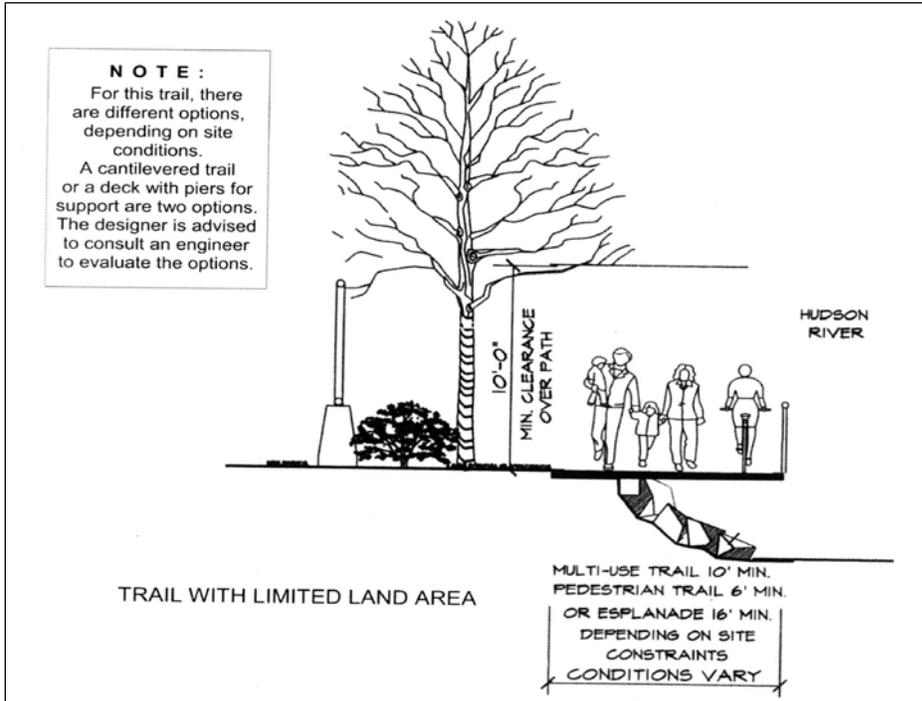


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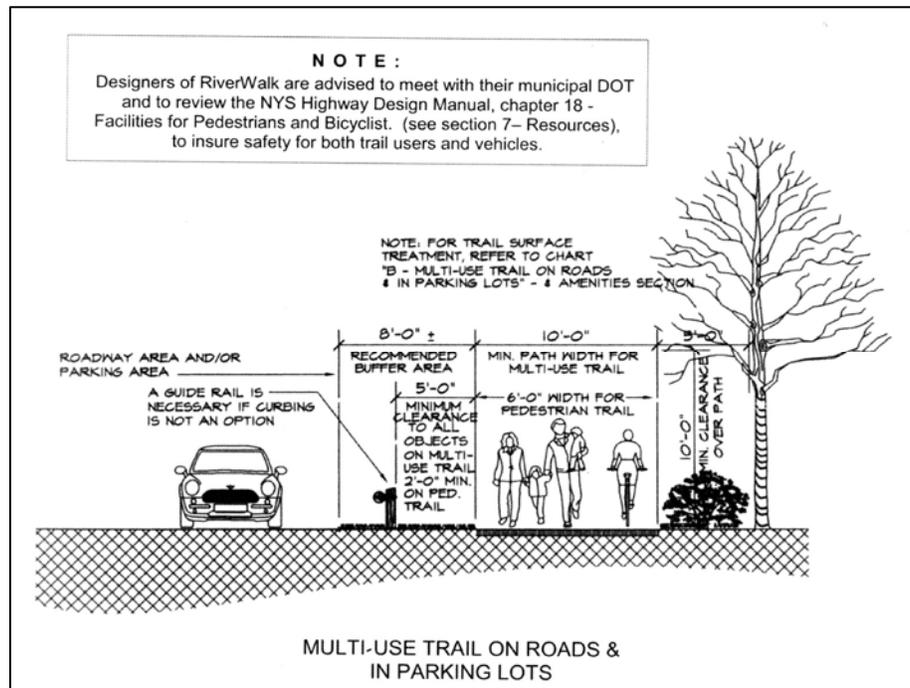
was purchased by the Suffolk County Parks Department and a management plan for the property will eventually entail hiking trails and other improvements. The Town of Brookhaven should initiate coordination with Suffolk County to connect the proposed Tallmadge Trail with the future trail system on the Chandler Estate property.

Figure 6-2. Conceptual Cantilevered Trail along Shore Road.



Drawing courtesy of the Westchester RiverWalk Guidelines Manual (Cherbuliez/Munz PLLC, Westchester Co. Planning Dep't, 2005)

Figure 6-3. Conceptual Roadside Trail along Pipe Stave Hollow Road.



Drawing courtesy of the Westchester RiverWalk Guidelines Manual (Cherbuliez/Munz PLLC, Westchester Co. Planning Department, 2005)



6.4 Potential Funding Sources

New York State and the federal government provide many opportunities to obtain government funding. The types of projects eligible for funding are wide-ranging. Each grant program has its own application periods and requirements, which can be obtained by accessing the websites of the sponsoring agencies. The grant programs (and the sponsoring agencies) listed below may be relevant to the types of projects and recommendations noted in the Mt. Sinai HMP. This listing does not include private funding sources from foundations.

New York State:

Long Island Sound Futures Fund

- Provides grants to organizations working to protect and restore the health and living resources of Long Island Sound.

National Fish & Wildlife Foundation

Enhancement Projects Grant Program

- Funds projects and studies that help implement the Comprehensive Conservation and Management Program.

Long Island Sound Study CCMP

Small Grants Program

- Provides grants for a variety of programs and projects that educate and involve the public in the protection of the Sound and its watershed.

Long Island Sound Study

Research Grant Program

- Funds research that helps meet the needs of decision-makers to improve management of the Sound.

Long Island Sound Study

Research Grant Program

- Supports scientific research on identified needs

New York Sea Grant

Water Quality Improvement Projects

- Funds water quality improvement projects including nonpoint source abatement, aquatic habitat restoration, and other planning activities.
- Clean Vessel Grants
 - Clean Vessel Act Information & Education Program
 - Provides assistance to promote the understanding, knowledge and use of pump-out stations.
- Clean Vessel Assistance Program
 - Provides grants for pump-out and wash-down facilities.

NYSDEC*

Clean Water/Clean Air Bond Act Grants

NYSDEC*



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- Funds water quality improvements, habitat restoration, open space protection, development of waterfront parks and historic preservation.

Habitat/Access Stamp Funding Program NYSDEC*

- Funds projects aimed at improving fish and wildlife habitat as well as public access for fish and wildlife related recreation and study, including hunting, fishing, and trapping.

Environmental Protection Fund NYSDEC* NYSDOS & NYS OPRHP*

- Parks Program
 - Provides matching grants for acquisition or development of parks and recreational facilities that reflect the priorities of the NY Statewide Comprehensive Outdoor Recreation Plan. Projects may be to preserve, rehabilitate or restore lands, waters or structures for park, recreation and conservation purposes.
- Local Waterfront Revitalization Program
 - Provides 50/50 matching grants for the following types of projects:
 - Urban waterfront redevelopment
 - Preparing/implementing a waterbody/watershed management plan
 - Coastal education and NYSCRIP signage programs
 - Community visioning and development of revitalization strategies
 - Completing or implementing a Local Waterfront Revitalization Program
 - Creating a Blueway Trail

Quality Community Grant Program NYSDOS*

- Provides assistance to improve community centers, preserve open space and other planning efforts.

* NYSDEC – New York State Department of Environmental Conservation
 * NYS OPRHP – New York State Office of Parks, Recreation & Historic Preservation
 * NYSDOS - Quality Community Grant Program

Federal:

Assessment and Watershed Protection Program	USEPA *
Environmental Education Grants	USEPA*
Targeted Watershed Grants	USEPA*
National Coastal Wetlands Conservation Grants	USFWS*
North American Waterfowl Conservation Grants	USFWS*
Land and Water Conservation Fund Program	NPS*
Recreational Trails Program	FHA*

* USEPA - US Environmental Protection Agency
 * USFWS – US Fish and Wildlife Service
 * NPS – National Park Service



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7.0 REFERENCES



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- Ayres, W.O. 1842-1844. Enumeration of the fishes of Brookhaven, Long Island, with remarks upon the species observed. Boston J. Nat. Hist. IV: 255-292.
- Bone, F.W. 1998. *Sands of Time: A History of the Sand and Gravel Operations in Port Jefferson and Nearby Harbors*. Three Village Historical Society, Setauket, NY. 150 pp.
- Bower, S.M. 2001. Synopsis of Infectious Diseases and Parasites of Commercially Exploited Shellfish: Gonadal Neoplasia of Clams. Website: http://www.pac.dfo-mpo.gc.ca/sci/shelldis/title_e.htm, Accessed November 20, 2005.
- Burgess, Robyn. 2005. Long Island Sound Study Update, Spring 2005. New York State Department of Environmental Conservation.
- Burr, David H., 1829. Map of the County of Suffolk by David H. Burr. Published by the Surveyor General, pursuant to an Act of the Legislature. Engd. by Rawdon, Clark & Co., Albany & Rawdon, Wright & Co., N. York.
- Carrano, Tom. 2005. Town of Brookhaven, Environmental Protection Department. Personal Communication, November 7, 2005.
- Ceccaci, V., R.S. Cohn, C.J. Daly, P. Guerrero, D. Huang, R.T. Lorand, D.C. Maloney, L. Miller, W.K. Muench, R.M. Pellegrino, R. Said and T. Streck. 1972. Political ecology of the wetlands: The case of Mount Sinai Harbor. Environmental Studies Series, #1, Interdisciplinary Program in Environmental Studies, SUNY Stony Brook, NY. 103 pp.
- Decker, C.J. 1998. A Habitat Management Strategy for Mt. Sinai Harbor, NY. New York State Department of Environmental Conservation. Prepared for the Long Island Sound Study.
- Flood, Roger. 2005. State University of New York (SUNY) Stony Brook Marine Science Resource Center, Professor. Personal communication, October 2005.
- Gass, R.W. 1995. Proposal for multiple use open space. An unpublished research paper for Environmental Politics and Policy POL 543/CEI 504, SUNY Stony Brook, NY. 21 pp.
- Gibbons, Nick. 2005. Suffolk County Parks Department. Personal Communication, December 2005 and October 2006.
- Gross, M.G., D. Davies, P.M. Lin and W. Loeffler. 1972a. Characteristics and Environmental Quality of Six North Shore Bays, Nassau and Suffolk Counties, Long Island, New York. Marine Sciences Research Center, State University of New York, Stony Brook, NY. Technical Report Series #14. 96 pp.
- Gross, M.G., D. Davies, P.M. Lin and W. Loeffler. 1972b. Survey of Water Quality and Sediments in Six North Shore Bays, Nassau and Suffolk Counties, Long Island, New York (Appendix to Technical Report #14). Marine Sciences Research Center, State University of New York, Stony Brook, NY. Technical Report Series #15. 29 pp.



MT. SINAI HARBOR MANAGEMENT PLAN



- Kessler, Craig. 2005. Ducks Unlimited. Personal communication, November 2005.
- Klips, R.A. 1974. Botanical survey of the proposed Mount Sinai marine sanctuary. An unpublished report to the Town of Brookhaven. 31 pp.
- Landsberg, J.H. 1996. Neoplasia and biotoxins in bivalves: is there a connection? *Journal of Shellfish Research* 15: 203-230.
- Mattei, Dr. Jennifer. 2005. Long Island Sound Study Update, Spring 2005.
- Muller, Linda, 2005. Town of Brookhaven, Clerk. Personal Communication, November 10, 2005.
- Muschack, Fred. 2006. New York State Department of Environmental Conservation (NYSDEC). Personal communication. April 13, 2006.
- Nelson, Pope & Voorhis. 2003. Mount Sinai Harbor Stormwater Improvement Project. Prepared for Town of Brookhaven. February 2003.
- New York State Conservation Department. 1969. Mount Sinai Harbor: A Partial Biological and Geological Study of Substrates of the South Portion.
- Newell, C.R. & Hidu, H. 1986. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (North Atlantic). Softshell clam. *U.S. Fisheries & Wildlife Service, Biological Report* 82 (11.53). *U.S. Army Corps of Engineers*, TR EL-82-4, 17 pp.
- New York State Department of Environmental Conservation (NYSDEC). 1993. The 1993 Priority Water Problem List for the Atlantic Ocean/Long Island Sound Basin.
- New York State Department of Environmental Conservation (NYSDEC). 1996. The 1996 Priority Waterbodies List for the Atlantic Ocean/Long Island Sound Basin. 221 pp.
- New York State Department of Environmental Conservation (NYSDEC). Shellfish Landings Data, 2000-2003. Website: http://www.st.nmfs.gov/st1/commercial/landings/annual_landings.html, Accessed March 2005.
- New York State Department of Environmental Conservation (NYSDEC). Tidal Wetlands Losses in Nassau and Suffolk Counties. Website: <http://www.dec.ny.gov/lands/31989.html>, Accessed on December 5, 2007.
- New York State Department of Environmental Conservation (NYSDEC). Waterfowl Hunting Zones. Website: <http://www.dec.ny.gov/outdoor/28497.html>, Accessed on December 5, 2007.
- New York State Department of Environmental Conservation (NYSDEC). Strategy for Addressing Loss of Intertidal Marsh in the Marine District. Website: <http://www.dec.ny.gov/lands/31879.html>, Accessed on December 5, 2007.



MT. SINAI HARBOR MANAGEMENT PLAN



- New York State Department of Environmental Conservation (NYSDEC). 2005. Draft New York State Open Space Conservation Plan & Generic Environmental Impact Statement, November 2005. 412 pp.
- New York State Department of State (NYDOS). 1987 & 2004. Coastal Fish & Wildlife Habitat Assessments.
- New York State Department of State (NYDOS). 1998. Guidelines for the Preparation of Harbor Management Plans.
- New York State Department of State (NYDOS) & U.S. Fish & Wildlife Service (USFWS). 1998. Marine Turtles, Diamond Back Terrapin, Mud Turtles and Seals. South Shore Estuary Reserve Technical Report Series. Website: http://www.nyswaterfronts.com/final_draft_html/Tech_Report_HTM/PDFs/Chap3/Turtles_and_Seals.pdf, Accessed November 20, 2005.
- Reeser, Don. 2005. Town of Brookhaven, Bay Constable. Personal Communication, November 2005.
- Robbins, S.K. 1977. Stony Brook Harbor: An Interdisciplinary Analysis. SUNY, MSRC. Special Report.
- SCDHS. 1987. Suffolk County Comprehensive Water Resources Management Plan Volume 1, Hauppauge, New York.
- SCDHS. 1999. Water Quality Monitoring Program to Detect Pesticide Contamination in Groundwaters of Nassau and Suffolk Counties, NY.
- SCDHS. 2007. Suffolk County North Shore Embayments Watershed Management Plan. Prepared by SC North Shore Embayments Consultant Team (Nelson, Pope & Voorhis, LLC and EEA, Inc.).
- Suffolk County Department of Planning (SCDP), 2004. Master List and Maps of Proposed County Open Space Acquisitions 2004. 62 pp.
- Suffolk County Department of Planning (SCDP). February 2005. Existing Land Use Inventory for the Town of Brookhaven.
- Suffolk County Department of Planning (SCDP), April 2005, (Draft). 2001 Land Available for Development. Long Island Sound Study, Suffolk County North Shore Embayments Watershed Management Program.
- Tanksi, J. 1998. Stormwater Runoff – Best Management Practices for Marinas – A Guide to Operators. New York Sea Grant and Cornell Cooperative Extension for Peconic Estuary Program. Stony Brook, NY.
- Town of Brookhaven Community Preservation Fund, 2003. Final Community Preservation Project Plan, July 22, 2003. Adopted by Town of Brookhaven Town Board on September 2, 2003.
- Town of Brookhaven Comprehensive Land Use Plan. May 1996.
- Town of Brookhaven Draft Local Waterfront Revitalization Program. 1990.



MT. SINAI HARBOR MANAGEMENT PLAN



Town of Brookhaven. Mt. Sinai Hamlet Study. February 1996.

Vecchia, Janet. 2005. Town of Brookhaven Cedar Beach Nature Center, Parks Specialist. Personal communication, November 2005.

Ventaloro, Juliette. 2005. New York State Department of Environmental Conservation (NYSDEC). Personal communication, November 2005.

Warner, J.W., W.E. Hanna, R.J. Landry, J.P. Wulforst, J.A. Neeley, R.L. Holmes, C.E. Rice., 1975, Soil Survey of Suffolk County, New York, Washington, D.C.: U.S. Department of Agriculture, Soil Conservation Service, in cooperation with Cornell Agriculture Experiment Station, U.S. Government Printing Office.



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APPENDICES



MT. SINAI HARBOR MANAGEMENT PLAN



APPENDIX A

SOIL DESCRIPTIONS



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SOIL DESCRIPTIONS

Beaches, (Bc) – This unit consists of strips of nearly level or gently sloping sand or sand and gravel. These areas are inundated twice each day with saltwater at high tide. Wind and tides move much of the material, especially the sand, and most of the areas have no plant cover. The beaches along the north shore bordering Long Island Sound are narrower than those on the Atlantic Ocean side and generally contain more gravel, cobbles, and shell fragments. Because the north-shore coastline is incised with many harbors and bays, many of the areas are in small strips, and some are inclusions at the edge of adjacent more sloping soils. Beaches are used intensively for sunbathing and other related recreation activities. Location and the daily tidal flooding make most other uses impractical

Cut and fill land, gently sloping (CuB) - This series is comprised of areas that have been cut and filled for nonfarm uses. The areas generally are large, but some areas are about five (5) acres in size. This soil type is comprised of moderately sloping areas that have been graded for building sites. Slopes range from 1 to 8 percent.

Carver and Plymouth sands, 15-35% slopes (CpE) - The Carver series consists of deep, excessively drained coarse-textured soils. This soil type is found almost exclusively on moraines except for a few steep areas on side slopes along some of the more deeply cut drainage channels on outwash plains. The hazard for erosion is moderate to severe.

Cut and fill land, sloping (CuC) - This series is comprised of areas that have been altered in grading operations for housing developments, shopping centers, and similar nonfarm uses. Generally, the initial grading consists of cuts and fill for streets or parking lots. This soil type is comprised of moderately sloping areas that have been graded for building sites. Slopes range from 8 to 15 percent.

Dune Land (Du) – Dune land is made up of mounds or small hills of sand that have been piled up by wind. No soil horizons have formed in this sandy material. This land type is mainly along the barrier beach and large area of dunes in the vicinity of Napeague and Hither Hills State Park. Slope ranges from 1 to 35 percent. Vegetation is sparse in some areas, but other areas have a thick cover of pine. The hazard of erosion is high.

Fill Land, Dredged Material (Fd) – This unit is made up of areas that have been filled with material from hydraulic or mechanical dredging operations. These operations are used mainly to widen or deepen boat channels; however, some dredged material has been obtained from new channels cut into tidal marshes. Most of the dredged material is pumped onto tidal marshes. Smaller amounts are sometimes placed on beaches and dunes and on nearby mineral soils. Areas are satisfactory for building sites where the fill is adequate and if the highly compressible organic layers in the tidal marshes are removed prior to filling. Areas where the fill is placed on marshes containing thick organic layers are likely to be unstable and need onsite investigation before building on them. Droughtiness, low fertility, and high salt content severely limit the establishment of lawns and other landscape plantings. Cesspools do not function properly where the ground water is at a shallow depth.



MT. SINAI HARBOR MANAGEMENT PLAN



Escarpmnts (Es) – Escarpments are made up of bluffs that have slopes greater than 35 percent. The soil horizons have not formed in this actively eroding material. Except for a few scattered trees, this unit is devoid of vegetation. Height of the escarpments ranges from about 20 feet to more than 100 feet. This unit is primarily composed of sand material along the north shore and sandy loam or loamy sand at Montauk Point. The hazard of erosion is high.

Haven loam 0-2% slopes (HaA) - This map unit consist of deep, well drained, medium textured soils that formed in a loamy or silty mantle over stratified coarse sand and gravel. Most of these areas are on outwash plains; some are on moraines and generally are on top of low-lying hills. The hazard of erosion is slight and internal drainage is good. Natural fertility is low.

Haven loam 2-6% slopes (HaB) - The Haven series consists of deep, well drained, medium textured soils that formed in a loamy or silty mantle over stratified coarse sand and gravel. This soil is found on outwash plains and moraines, commonly along shallow drainage channels. The hazard of erosion is moderate to slight.

Plymouth loamy sand, 0-3% slopes (PIA) - Consists of deep, excessively drained, coarse-textured soils that form a mantle of loamy sand or sand over thick layers of stratified coarse sand and gravel. These soils are mainly on outwash plains south of the Ronkonkoma moraine. The areas are generally level, but undulate in some areas. The hazard of erosion is slight.

Plymouth loamy sand, 3-8% slopes (PIB) - Consists of deep, excessively drained, coarse-textured soils that formed in a mantle of loamy sand over thick layers of stratified coarse sand and gravel. This soil is on moraines and outwash plains. The erosion hazard is slight and soil tends to be droughty.

Plymouth loamy sand, 8-15% slopes (PIC) - This map unit consists of moderately sloping soils on moraines and outwash plains. Where it occurs on moraines, slopes are rolling in many places, and the surface is broken by closed depressions. On outwash plains this soil type is on the short side slopes along intermittent drainageways. The hazard of erosion is moderate to severe because of the slopes and the sandy texture of the soil. Slope and droughtiness are the main limitations on this soil for most nonfarm uses.

Riverhead sandy loam, 3-8% slopes (RdB) - The Riverhead series consist of deep, well-drained, moderately coarse-textured soils. These soils occur primarily on outwash plains. A few small irregular areas are on the moraines. Riverhead soils have moderate to high available moisture capacity. Internal drainage is good, with moderately rapid to very rapid permeability. Natural fertility is low.

Tidal Marsh (Tm) - This soil type consists of wet areas that throughout the County around the borders of calmer embayments and tidal creeks. These level areas are not inundated by daily tide flow, but they are subject to flooding. These soils are very poorly drained.

Source: Warner *et al.*, 1975



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APPENDIX C

HABITAT INVENTORY



MT. SINAI HARBOR MANAGEMENT PLAN
HABITAT INVENTORY



TABLE 1
RESIDENT & ANADROMOUS FISH SPECIES HISTORICALLY OBSERVED IN MT. SINAI HARBOR

Striped bass (A)	<i>Morone saxatilis</i>
Striped searobin (A)	<i>Prionotus evolans</i>
Grubby (brassy sculpin) (A, C)	<i>Myoxocephalus aeneus</i>
Three-spine stickleback (A,C?)	<i>Gasterosteus aculeatus</i>
Four-spine stickleback (A,C?)	<i>Apeltes quadracus</i>
Weakfish (A,C)	<i>Cynoscion regalis</i>
Northern kingfish (A,C)	<i>Menticirrhus saxatilis</i>
Sheepshead (A)	<i>Archosargus probatocephalus</i>
Scup (A)	<i>Stenotomus chrysops</i>
Atlantic mackerel (A,C)	<i>Scomber scombrus</i>
Spanish mackerel (A)	<i>Scomberomorus maculatus</i>
Bluefish (A,C)	<i>Pomatomus saltatrix</i>
Atlantic moonfish (A)	<i>Selene setapinnis</i>
Butterfish (A)	<i>Peprilus triacanthus</i>
Atlantic silversides (A,C)	<i>Menida menida</i>
Goosefish (A)	<i>Lophius americanus</i>
Oyster toadfish (A)	<i>Opsanus tau</i>
Tautog (blackfish) (A,C)	<i>Tautoga onitis</i>
Cunner (A,C)	<i>Tautoglabrus adspersus</i>
Sheepshead minnow (A,C)	<i>Cyprinodon variegatus</i>
Striped mullet (A)	<i>Mugil cephalus</i>
Mummichog (A, C)	<i>Fundulus heteroclitus</i>
Striped killifish (A,C)	<i>Fundulus majalis</i>
Atlantic needlefish (A)	<i>Strongylura marina</i>
Atlantic herring (A)	<i>Clupea harengus</i>
Hickory shad (A)	<i>Alosa mediocris</i>
Atlantic menhaden (A,C)	<i>Brevoortia</i>
Atlantic tomcod (A,C)	<i>Microgadus tomcod</i>
Silver hake (whiting) (A)	<i>Merluccius bilinearis</i>
Red hake (A)	<i>Urophycis chuss</i>
Winter flounder (A,C)	<i>Pleuronectes americanus</i>
Windowpane flounder (A,C)	<i>Scophthalmus aquosus</i>
Hogchoker (A)	<i>Trinectes maculatus</i>
American eel (A,C)	<i>Anguilla rostrata</i>
American sand lance (A,C)	<i>Ammodytes americanus</i>
Northern pipefish (A,C)	<i>Sphoeroides maculatus</i>
Striped burrfish (spiny boxfish) (A)	<i>Chilomycterus schoepfi</i>
Northern puffer (A,C)	<i>Sphoeroides maculatus</i>
Sand tiger (A)	<i>Odontaspis taurus</i>
Smooth dogfish (A)	<i>Mustelus canis</i>
Spiny dogfish (A)	<i>Squalus acanthias</i>
Winter skate (A)	<i>Raja ocellata</i>
Roughtail stingray (A)	<i>Dasyatis centoura</i>
Bullnose ray (A)	<i>Myliobatis freminvillei</i>
Atlantic bonito (A)	<i>Sarda sarda</i>

Source: Compiled from Ayres 1842-44 (A) and anonymous class lists 1963-66 (C), as presented in "A Habitat Management Strategy for Mt. Sinai Harbor, NY" (Decker, 1998).



MT. SINAI HARBOR MANAGEMENT PLAN
HABITAT INVENTORY



TABLE 2
BOTANICAL SURVEY OF TOWN-OWNED LAND AT CRYSTAL BROOK HOLLOW

Salt Marsh

Salt cordgrass	<i>Spartina alterniflora</i>
Salt hay	<i>Spartina patens</i>
Spearscale	<i>Atriplex patula</i>
Salt marsh fleabane	<i>Pluchea purpurascens</i>
Olney's bulrush	<i>Scirpus olneyi</i>
Marsh bulrush	<i>Scirpus maritimus</i>

Cattail and Reed Stands

* Common reed	<i>Phragmites australis</i> [i]
Narrow-leaved cattail	<i>Typha angustifolia</i>
Broad-leaved cattail	<i>Typha latifolia</i>
Twining groundout	<i>Apios Americana</i>
* Catbriar	<i>Smilax sp.</i>
Common sow thistle	<i>Sonchus arvensis</i>
Morning glory	<i>Convolvulus sepium</i>
Bouncing bet	<i>Saponaria officinalis</i>
Old field toadflax	<i>Linaria Canadensis</i>

Brackish Marsh

(includes reed and cattail species, bulrush spp., spearscale, fleabane)

Swamp rose mallow	<i>Hibiscus palustris</i>
Cyperus	<i>Cyperus strigosus</i>
Manna grass	<i>Glyceria striata</i>
Water pimpinell	<i>Samolus floribundus</i>
Mock bishop's weed	<i>Ptilimnium capillaceum</i>
Sour dock	<i>Rumex crispus</i>
Marsh fern	<i>Thelypteris palustris</i>

Fresh Marsh

(includes broad-leaved cattail, swamp rose-mallow)

Swamp candles	<i>Lysimachia terrestris</i>
Arrow arum	<i>Peltandra virginica</i>
Tear thumbs	<i>Polygonum arifolium and P. sagittatum</i>
Arrowhead	<i>Sagittaria spp.</i>
Blue flag	<i>Iris versicolor</i>
Lizard's tail	<i>Saururus cernuus</i>
Pennsylvania bittercress	<i>Cardamine pennsylvanica</i>
Touch-me-not	<i>Impatiens biflora</i>
Broad dock	<i>Rumex obtusifolius</i>
Purple-leaved willow herb	<i>epilobium coloratum</i>
Spike rush	<i>Eleocharis sp.</i>
Creeping bent (grass)	<i>Agrostis stolonifera</i>
Dodder	<i>Cuscuta sp.</i>



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Freshwater Pond

(includes Penn. Bittercress, touch-me-not, broad-leaved cattail, dodder, other wildflowers listed for fresh marsh).

Duckweed	<i>Lemna minor</i>
Duckweed	<i>Spirodela polyrhiza</i>
Celery-leaved crowfoot	<i>Ranunculus sceleratus</i>
Cut grass	<i>Leersia orzoides</i>
Bur-reed	<i>Sparganium</i> sp.
Sensitive fern	<i>Onoclea sensibilis</i>
* Common reed	<i>Phragmites australis</i> [i]

Woodland, Marsh and Pond Borders

* Skunk cabbage	<i>Symplocarpus foetidus</i>
Juneberry	<i>Amelanchier canadensis</i>
* Alder	<i>Alnus serrulata</i>
Red chokeberry	<i>Aronia arbutifolia</i>
Fox grape	<i>Vitis labrusca</i>
* Cinnamon fern	<i>Osmunda cinnamomea</i>
Meadow rue	<i>Thalictrum polygamum</i>
* Poison ivy	<i>Rhus radicans</i>
Elder	<i>Sambucus canadensis</i>
Sweet Pepperbrush	<i>Clethra alnifolia</i>
* Catbriar	<i>Smilax rotundifolia</i>
* Swamp rose mallow	<i>Hibiscus palustris</i>

Upland Peninsula between Brackish and Fresh Marshes

(includes beech, black gum)

White oak	<i>Quercus alba</i>
Mountain laurel	<i>Kalmia latifolia</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Pink azalea	<i>Rhododendron nudiflorum</i>
Dwarf huckleberry	<i>Gaylussica baccata</i>
Bellwort	<i>Uvularia sessiflora</i>
Canada mayflower	<i>Maianthemum canadense</i>
Wintergreen	<i>Chinaphila maculate</i>
Wild sarsaparilla	<i>Aralia nudicaulis</i>
Ground pine	<i>Lycopodium obscurum</i>
New York fern	<i>Thelypteris noveboracensis</i>
Indian cucumber root	<i>Medeola virginica</i>
Turk's cap lily	<i>Lilium superbum</i>



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Woodland

(includes Canada mayflower, wild sarsaparilla, New York fern)

Beech	<i>Fagus grandifolia</i>
Black oak	<i>Quercus velutina</i>
Northern red oak	<i>Quercus rubra</i>
Chestnut oak	<i>Quercus prinus</i>
Red maple	<i>Acer rubrum</i>
Black gum	<i>Nyssa sylvatica</i>
Hickory	<i>Carya</i> spp.
Flowering dogwood	<i>Cornus florida</i>
Sassafras	<i>Sassafras albidum</i>
Spice bush	<i>Lindera benzoin</i>
Maple-leaved viburnum	<i>Viburnum acerifolium</i>
Solomon's seal	<i>Polygonatum biflorum</i>
Hairy Solomon's seal	<i>Polygonatum pubescens</i>
False Solomon's seal	<i>Smilacena racenosa</i>
Virginia creeper	<i>Parthenocissus quinquefolia</i>

Roadside (Disturbed) Areas

Multiflora rose	<i>Rosa multiflora</i> [i]
Common blackberry	<i>Rubus allegheniensis</i>
Wineberry	<i>Rubus phoenicolasius</i>
Walnut	<i>Juglans nigra</i>
White mulberry	<i>Morus alba</i>
Sour cherry	<i>Prunus cerasus</i>
Tree-of-heaven	<i>Ailanthus altissima</i> [i]
Black locust	<i>Robinia pseudoacacia</i> [i]
Summer grape	<i>Vitis aestivalis</i>
Japanese honeysuckle	<i>Lonicera japonica</i> [i]
Asiatic bittersweet	<i>Celastrus orbiculatus</i> [i]
Smaller hop clover	<i>Trifolium procumbens</i>
Ground ivy	<i>Glechoma hederacea</i>
Yellow wood sorrel	<i>Oxalis stricta</i> and <i>O. europea</i>
Bittersweet nightshade	<i>Solanum dulcamara</i>
Evening lychnis	<i>Lychnis alba</i>
Common chickweed	<i>Stellaria media</i>
Smartweed	<i>Polygonum caespitosum</i>

* Species identified on site during field visits by NPV Staff.

[i] NYS invasive species (As of 2005, no legal status)

Source: Compiled from Klips 1974, as presented in "A Habitat Management Strategy for Mt. Sinai Harbor, NY" (Decker, 1998).



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TABLE 3
BOTANICAL SURVEY OF THE FORMER CHANDLER ESTATE PROPERTY

Mature Forest

White oak (G,D)	<i>Quercus alba</i>
Red oak (G)	<i>Quercus rubra</i>
Scarlet oak (D)	<i>Quercus coccinea</i>
Black oak (D)	<i>Quercus velutina</i>
Black birch (G)	<i>Betula lenta</i>
Black cherry (G,D)	<i>Prunus serotina</i>
Maples (G,D)	<i>Acer</i> spp.
Beech (G,D)	<i>Fagus gradifolia</i>
Pignut hickory (D)	<i>Carya glabra</i>
Christmas fern (G,D)	<i>Polystichum acrostichoides</i>
Maple-leaf viburnum (G,D)	<i>Viburnum acerifolium</i>
Other viburnums (G)	<i>Viburnum</i> spp.
Catbriar (G)	<i>Smilax glauca</i>
Wild sarsaparilla (D)	<i>Aralia nudicaulis</i>
Mountain laurel (G,D)	<i>Kalmia latifolia</i>
Low-bush blueberry (G,D)	<i>Vaccinium angustifolium</i>
Green briar (D)	<i>Smilax</i> sp.
Poison ivy (G,D)	<i>Rhus radicans</i>
False lily-of-the-Valley (D)	

Early Successional Forest

Red cedar (G)	<i>Juniperus virginiana</i>
Black cherry (G,D)	<i>Prunus serotina</i>
Sweet cherry (G)	<i>Prunus avium</i>
Tree-of-heaven (<i>Ailanthus</i>) (G)	<i>Ailanthus altissima</i> [i]
Norway maple (G)	<i>Acer platanoides</i> [i]
Walnut (G)	<i>Juglans nigra</i>
Black birch (G)	<i>Betula lenta</i>
Sumac (G,D)	<i>Rhus</i> spp.
Green briar (D)	<i>Smilax</i> sp.
Catbriar (G)	<i>Smilax glauca</i>
Touch-me-not (D)	<i>Impatiens biflora</i>
Wineberry (D)	<i>Rubus phoenicolasius</i>
Asiatic Bittersweet (G)	<i>Celastrus orbiculatus</i> [i]
Summer grape (G)	<i>Vitis aesivalis</i>
Poison ivy (G,D)	<i>Rhus radicans</i>

Lowlands along the watercourse

Tree-of-heaven (G,D)	<i>Ailanthus altissima</i> [i]
Black cherry (G,D)	<i>Prunus serotina</i>
Black birch (G)	<i>Betula lenta</i>
Norway maple (G)	<i>Acer platanoides</i> [i]
Walnut (G)	<i>Juglans nigra</i>
Red cedar (G)	<i>Juniperus virginiana</i>
Sumac (G)	<i>Rhus</i> spp.



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Catbriar (G)	<i>Smilax glauca</i>
Asiatic Bittersweet (G)	<i>Celastrus orbiculata</i> [i]
Summer grape (G)	<i>Vitis aestivalis</i>
Raspberry (wineberry?) (G)	<i>Rubus</i> sp.
Poison ivy (G,D)	<i>Rhus radicans</i>
Christmas fern (G)	<i>Polystichum acrostichoides</i>
Viburnums (G,D)	<i>Viburnum</i> spp.
Swamp currant (G)	<i>Ribes</i> sp.
Inkberry (G)	<i>Ilex glabra</i>
Spicebush (G)	<i>Lindera benzoin</i>
Common reed (G,D)	<i>Phragmites australis</i> [i]

[i] NYS invasive species (As of 2005, no legal status)

Source: Compiled from Gass 1995 (G) and Drewes 1997 (D), as presented in “A Habitat Management Strategy for Mt. Sinai Harbor, NY” (Decker, 1998).

Table 4
BIRDS OBSERVED IN MT. SINAI HARBOR

Wading Birds, Waterfowl and Other Species found near the Water

Common loon (C)	<i>Gavia immer</i>
Great blue heron (C,W)	<i>Ardia Herodias</i>
Green heron (C,W)	<i>Butorides striatus</i>
Little blue heron (C)	<i>Egretta caerulea</i>
Yellow-crowned night heron (C,W)	<i>Nycticorax violaceus</i>
Black-crowned night heron (C,W)	<i>Nycticorax nycticorax</i>
Cattle egret (C)	<i>Bubulcus ibis</i>
Snowy egret (W)	<i>Egretta thula</i>
Great egret (W)	<i>Casmerodius albus</i>
Glossy ibis (W)	<i>Plegladiis chihi</i>
American bittern	<i>Botaurus lentiginosus</i>
Mute swan (C,W)	<i>Cygnus olor</i>
Canada goose (C,W)	<i>Branta canadensis</i>
Snow goose (C)	<i>Chen caerulescens</i>
Brant (C,W)	<i>Branta bernicla</i>
Mallard (C,W)	<i>Anas platyrhynchos</i>
Black duck (C,W)	<i>Anas rubribes</i>
(Northern) Shoveler (C)	<i>Anas clypeata</i>
Wood duck (C)	<i>Aix sponsa</i>
Canvasback (C)	<i>Aythya valisineria</i>
Greater scaup (C,W)	<i>Aythya marila</i>
Lesser scaup (W)	<i>Aythya affinis</i>
Common goldeneye (C,W)	<i>Bucephala clangula</i>
Bufflehead (C,W)	<i>Bucephala albeola</i>
Oldsquaw (C,W)	<i>Clangula hyemalis</i>
Green-winged teal (W)	<i>Anas carolinensis</i>



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Hooded merganser (W)	<i>Lophodytes cucullatus</i>
Red-breasted merganser (W)	<i>Mergus serrator</i>
Pintail (W)	<i>Anas acuta</i>
Pied-billed grebe (W)	<i>Podilymbus podiceps</i>
White-winged scoter (C,W)	<i>Melanitta deglandi</i>
Surf scoter (C,W)	<i>Melanitta perspicillata</i>
Common scoter (C,W)	<i>Oidemi nigra</i>
Clapper rail (C)	<i>Rallus logirostris</i>
Virginia rail (W)	<i>Rallus limicola</i>
American oystercatcher (W)	<i>Haematopus palliatus</i>
American coot (C,W)	<i>Fulica americana</i>
Double crested cormorant (W)	<i>Phalacrocorax auritus</i>
Gadwall (W)	<i>Anas strepera</i>
Semi-palmated plover (C,W)	<i>Charadrius semipalmatus</i>
Piping plover (C)	<i>Charadrius melodus</i>
Black-bellied plover (W)	<i>Squatarola squatarola</i>
Ruddy turnstone (C,W)	<i>Arenia interpres</i>
Dunlin (W)	<i>Erolia ferruginea</i>
Common snipe (C)	<i>Capella gallinago</i>
Killdeer (C,W)	<i>Charadrius vociferus</i>
Solitary sandpiper (C)	<i>Tringa solitaria</i>
Least sandpiper (C,W)	<i>Erolia minutilla</i>
Semi-palmated sandpiper (C,W)	<i>Ereunetes pusillas</i>
Willet (W)	<i>Cataptrophorus semipalmatus</i>
Greater yellowlegs (C,W)	<i>Totanus melanoleucus</i>
Sanderling (C,W)	<i>Crocethia alba</i>
Great black-backed gull (C,W)	<i>Larus marinus</i>
Herring gull (C,W)	<i>Larus argentatus</i>
Laughing gull (C,W)	<i>Larus atricilla</i>
Bonaparte's gull (C)	<i>Larus philadelphia</i>
Ring-billed gull (C,W)	<i>Larus delawarensis</i>
Common tern (C,W)	<i>Sterna hirundo</i>
Sooty tern (C)	<i>Sterna fuscata</i>
Least tern (W)	<i>Sterna albifrons</i>
Belted kingfisher (C,W)	<i>Ceryle alcyon</i>
Horned lark (C)	<i>Eremophila alpestris</i>
Bank swallow (C)	<i>Riparia riparia</i>
Rough-winged swallow (C)	<i>Stelgidopteryx rufficollis</i>
Cliff swallow (C)	<i>Petrochelidon pyrrhonata</i>
Common (American) crow (C,W)	<i>Corvus brachyrhynchos</i>
Fish crow (C,W)	<i>Corvus ossifragus</i>
Redwinged blackbird (C,W)	<i>Agelaius phoeniceus</i>
Rusty blackbird (C)	<i>Euphagus carolina</i>
Common grackle(C,W)	<i>Quiscalus quiscula</i>
Mourning dove (C,W)	<i>Zenaida macroura</i>
Seaside sparrow (C)	<i>Ammonospiza maritima</i>
Swamp sparrow (C)	<i>Melospiza georgiana</i>
Marsh hawk (C)	<i>Circus cyaneus</i>



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Woodland, Shrubland and Grassland Species

House sparrow (C)	<i>Passer domesticus</i>
Tree sparrow (C)	<i>Spizella arborea</i>
Chipping sparrow (C)	<i>Spizella passerine</i>
Field sparrow (C)	<i>Spizella pusilla</i>
White-crowned sparrow (C)	<i>Zonotrichia leucophrys</i>
White-throated sparrow (C)	<i>Zonotrichia albicollis</i>
Vesper sparrow (C)	<i>Pooecetes gramineus</i>
Sharp-tailed sparrow (C)	<i>Ammodramus caudacuta</i>
Song sparrow (W)	<i>Melospiza melodia</i>
Ruffed grouse (C)	<i>Bonasa umbellus</i>
Bobwhite (C)	<i>Colinus virginianus</i>
Ring-necked pheasant (C)	<i>Phasianus colchicus</i>
American woodcock (C)	<i>Philohela minor</i>
Yellow-billed cuckoo (C)	<i>Coccyzus americanus</i>
Screech owl (C)	<i>Otus asio</i>
Long-eared owl (C)	<i>Asio otus</i>
Whipoorwill (C)	<i>Laprimulgus vociferous</i>
Chimney swift (C)	<i>Chaetura pelagica</i>
Common nighthawk (C)	<i>Chordeiles minor</i>
Ruby-throated hummingbird (C)	<i>Archilochus colubris</i>
Flicker (C)	<i>Colaptes auratus</i>
Yellow-bellied sapsucker (C)	<i>Sphyrapicus varius</i>
Hairy woodpecker (C)	<i>Picoides pillosus</i>
Downy woodpecker (C,W)	<i>Picoides pubescens</i>
Red-bellied woodpecker (W)	<i>Melanerpes carolinus</i>
Red-bellied woodpecker (C)	<i>Melanerpes erythrocephalus</i>
Eastern kingbird (C)	<i>Tyrannus tyrannus</i>
Eastern phoebe (C)	<i>Syornis phoebe</i>
Least flycatcher (C)	<i>Empidonax minimus</i>
Willow flycatcher (W)	<i>Empidonax traillii</i>
Eastern wood pewee (C)	<i>Contopus virens</i>
Barn swallow (C)	<i>Hirundo rustica</i>
Purple martin (C)	<i>Progne subis</i>
Blue jay (C,W)	<i>Cyanocitta cristata</i>
Black-capped chickadee (C,W)	<i>Parus atricapillus</i>
Tufted titmouse (C,W)	<i>Parus bicolor</i>
White-breasted nuthatch (C,W)	<i>Sitta carolinensis</i>
Red-breasted nuthatch (C)	<i>Sitta Canadensis</i>
Brown creeper (C)	<i>Certhia familiaris</i>
House wren (C)	<i>Troglodytes aedon</i>
Carolina wren (C,W)	<i>Thryothorus ludovicianus</i>
Mockingbird (C)	<i>Mimus polyglottos</i>
Gray catbird (C,W)	<i>Dumetella carolinensis</i>
Brown thrasher (C)	<i>Toxostoma rufum</i>
American robin (C,W)	<i>Turdus migratorius</i>
Wood Thrush (C,W)	<i>Hylocichla mustelina</i>



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Hermit thrush (C)	<i>Catharus guttaus</i>
Veery (C)	<i>Catharus fuscescens</i>
Eastern bluebird (C)	<i>Sialia sialis</i>
Golden crowned kinglet (C)	<i>Regulus satrapa</i>
Cedar waxwing (C,W)	<i>Bombycilla cedrorum</i>
Northern shrike (C)	<i>Lanius excubitor</i>
Starling (C)	<i>Sturnus vulgaris</i>
White-eyed vireo (C)	<i>Vireo griseus</i>
Warbling vireo (C)	<i>Vireo gilvus</i>
Black and white warbler (C,W)	<i>Mniotilta varia</i>
Blue-winged warbler (C)	<i>Vermivora pinus</i>
Parula warbler (C)	<i>Parula Americana</i>
Yellow warbler (C,W)	<i>Dendroica petechia</i>
Black-throated Blue warbler (C)	<i>Dendroica caerulescens</i>
Chesnut sided warbler (C)	<i>Dendroica pensylvanica</i>
Bay-breasted warbler (C)	<i>Dendroica castanea</i>
Palm warbler (C)	<i>Dendroica palmarum</i>
Blackburnian warbler (W)	<i>Dendroica fusca</i>
Ovenbird (C)	<i>Seiurus aurocaphillus</i>
Northern waterthrush (C)	<i>Seiurus aurocapillus</i>
Common yellowthroat (C,W)	<i>Geothlypis trichas</i>
Yellow-breasted chat (C)	<i>Icteria virens</i>
Bobolink (C)	<i>Dolichonyx oryzivorus</i>
Eastern meadowlark (C)	<i>Sturnella magna</i>
Baltimore (Northern) oriole (C)	<i>Icturus galbula</i>
Brown-headed cowbird (C,W)	<i>Molothrus ater</i>
Scarlet tanager (C)	<i>Piranga olivacea</i>
Summer tanager (C)	<i>Piranga rubra</i>
Northern cardinal (C,W)	<i>Cardinalis cardinalis</i>
Rose-breasted grosbeak (C)	<i>Pheucticus ludovicianus</i>
Evening grosbeak (C)	<i>Hesperiphona vespertina</i>
Indigo bunting (C)	<i>Passerina cyanea</i>
Rufous-sided towhee (C)	<i>Pipilo erythrophthalmus</i>
Slate-colored (dark-eyed) junco (C)	<i>Junco hyemalis</i>
Red-tailed hawk (C)	<i>Buteo jamaicensis</i>
Broad-winged hawk (C)	<i>Buteo platypterus</i>
Pigeon hawk (merlin) (C)	<i>Falco columbarius</i>
Sparrow hawk (kestrel) (C)	<i>Falco sparvaerius</i>

Source: Compiled from anonymous class lists 1963-66 (C) and Wade et al. 1990 (waterbirds and waterfowl censused from the entire Harbor; others from the Crystal Brook Woods area at the south end of the Harbor (W), as presented in "A Habitat Management Strategy for Mt. Sinai Harbor, NY" (Decker, 1998).



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TABLE 5
MARINE AQUATIC INVERTEBRATES AND ALGAE SPECIES IN MT. SINAI HARBOR

Algae

Sea lettuce (A, C)	<i>Ulva lactuca</i>
Green algae (A)	<i>Enteromorpha</i> sp.
(C)	<i>E. intestinalis</i>
(C)	<i>E. linza</i>
(C)	<i>E. clathrata</i>
(C)	<i>E. erecta</i>
Green algae (A)	<i>Geldium</i> sp.
Kelp (A)	<i>Laminaria laminaria</i>
Rockweed (A,C)	<i>Fucus</i> sp.
Sea potato (A)	<i>Leathesia</i> sp.
[No common name] (A)	<i>Cladophora</i> sp.
[No common name] (A,C)	<i>Ectocarpus</i> sp.
Irish moss (A)	<i>Chondrus crispus</i>
[No common name] (A,C)	<i>Ceramium</i> sp.
[No common name] (A)	<i>Dasya</i> sp.
[No common name] (A)	<i>Arardhiella</i> sp.
[No common name] (A)	<i>Callethamnion</i> sp.
[No common name] (C)	<i>Monostroma</i> sp.
[No common name] (C)	<i>Chaetomorpha</i> sp.
Green fleece (C)	<i>Codium fragile</i>
[No common name] (C)	<i>Scytosiphon</i> sp.
[No common name] (C)	<i>Lomentaria</i> sp.
[No common name] (C)	<i>Ascophyllum</i> sp.
[No common name] (C)	<i>Hildenbrandia</i> sp.
[No common name] (C)	<i>Bangia</i> sp.
[No common name] (C)	<i>Porphyra</i> sp.

Vascular Plants

Elgrass (A)	<i>Zostera marina</i>
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Sponges

Red bearded sponge (A)	<i>Microciona</i> sp (prob. <i>prolifera</i>)
Sulfur sponge (A)	<i>Cliona</i> sp.

Coelenterates and Ctenophores

Roughspined snailfur (A)	<i>Hydractinia</i> sp. (prob. <i>echinata</i>)
Whiteweed hydroid (A)	<i>Sertularia</i> sp. (prob. <i>cupressina</i>)
Anemone (A)	<i>Sagartia</i> sp.
Clonal plumose anemone (A)	<i>Metridium</i> sp. (prob. <i>senile</i>)
Common southern comb jelly, or sea walnut (A)	<i>Mnemiopsis</i> sp. (prob. <i>leidyi</i>)

Flatworms and Ribbon Worms

Horseshoe crab flatworm (A)	<i>Bdelloura</i> sp.
Ribbon worm (A)	<i>Cerebratula</i> sp. (Prob. <i>lacteus</i>)
Ribbon worm (A)	<i>Micrura</i> sp.



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Ectoprocts

Encrusting bryozoan(A) *Membranipora* sp.(prob. *membranacea*)

Polychaetes

Common clam worm (A,C) *Nereis* sp. (prob. *virens*)
Yellow-jawed clam worm (C) *Nereis succinea*
Blood worm (A) *Glycera* sp.
Orante worm (A) *Amphitrite* sp. (prob. *ornate*)
Orbiniid worm (A) (*Leito* or *Haplo*)*scolopolos*
(= *Scolopolos*) sp.
Trumpet worm (A) *Cistenides* sp.
Sand tube-building (common)
bamboo worm)(A) *Clymenella* sp. (prob. *torquata*)
Thread worm (C) *Capitella capitata*

Molluscs

Periwinkle (A) *Littorina* sp.
Rough periwinkle (C) *Littorina saxatilis*
Atlantic oyster drill (A) *Urosalpinx* sp. (prob. *cinerea*)
Moon shell (shark eye) (A) *Neverita* (= *Polinices*) sp.
(prob. *duplicata*)
Eastern mudsnail (A,C) *Ilyanassa* (= *Nassarius*) *obsolete*
Knobbed whelk (A) *Busycon carica*
Plant limpet (A) *Notoacmea* (+ *Acmaea*) sp.
(prob. *testudinalis*)
Common razor clam (A,C) *Ensis directus*
Soft clam (A,C) *Mya arenaria*
Hard clam (A,C) *Mercenaria* (= *Venus*) *mercenaria*
Slipper (boat) shell (A,C) *Crepidula* sp.
Eastern oyster (A) *Crassostrea virginica*
False angel wing (A) *Petricola* sp. (prob. *Pholadiformis*)
Northern dwarf telling (C) *Tellina agilis*
Shipworm (A) *Teredo* sp. (prob. *navalis*)
Blue mussel (A,C) *Geukensia* (= *Modiolus*) *demissa*
Transverse ark (A) *Anadara* sp. (prob. *transversa*)
Amethyst gemclam (A,C) *Gemma gemma*
Common jingle (A) *Anomia* sp. (prob. *simplex*)
Longfin squid (A) *Loligo* sp. (prob. *pealii*)

Arthropods

Horseshoe crab (A,C) *Limulus polyphemus*
Sevenspine bay shrimp (A) *Crangon* (= *Crago*) sp.
(prob. *septispinosum*)
Common prawn (grass shrimp) (A,C) *Palaemonetes* sp. (prob. *vulgaris*)
Northern rock barnacle (A,C) *Semibalanus* (= *Balanus*) *Balanoides*
Goose-neck barnacle (A) *Lepas* sp.
Caprellid amphipod (A) *Caprella* sp. (prob. *penantis*)
Pontogeneid amphipod (A) *Pontogeneia* sp. (prob. *inermis*)
Gammarid amphipod (A,C) *Gammarus* sp.



MT. SINAI HARBOR MANAGEMENT PLAN *HABITAT INVENTORY*



Idoteid isopod (A,C)	<i>Idotea</i> sp.
Spider crab (A)	<i>Libinia</i> sp.
Green crab (A,C)	<i>Carcinus</i> (= <i>Carcinides</i>) <i>maenus</i>
Atlantic rock crab (A)	<i>Cancer</i> sp. (prob. <i>irroratus</i>)
Atlantic mud crab (A)	<i>Panopeus</i> sp. (prob. <i>herbstii</i>)
Fiddler crab (A)	<i>Uca</i> sp.
Hermit crab (A,C)	<i>Pagurus longicarpus</i>

Echinoderms

Northern sea star (A)	<i>Asterias vulgaris</i>
Synapta (A)	Prob. <i>Leptosynapta tenuis</i> or <i>Epitomapta roseola</i>
Hairy sea cucumber (A)	<i>Sclerodactyla</i> (= <i>Thyone</i>) sp. (prob. <i>briareus</i>)

Urochordates and Hemichordates

Golden star tunicate (A)	<i>Botryllus</i> sp (prob. <i>schlosseri</i>)
Acorn worm (A)	<i>Saccoglossus</i> sp. (prob. <i>Kowalewskii</i>)

Source: Compiled from anonymous class lists 1963-66 (A) and Ceccaci et al. 1971 (C), as presented in "A Habitat Management Strategy for Mt. Sinai Harbor, NY" (Decker, 1998).



MT. SINAI HARBOR MANAGEMENT PLAN



APPENDIX D

BREEDING BIRD SURVEYS



MT. SINAI HARBOR MANAGEMENT PLAN



NYS BREEDING BIRD ATLAS, 2000-2005

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status	Volunteer	Block
American Crow	<i>Corvus brachyrhynchos</i>	FY	7/4/2000	Game Species	DJF	6553B
American Crow	<i>Corvus brachyrhynchos</i>	P2	7/7/2000	Game Species	RGM	6653A
American Goldfinch	<i>Carduelis tristis</i>	P2	6/16/2001	Protected	DJF	6553B
American Goldfinch	<i>Carduelis tristis</i>	S2	6/30/2000	Protected	RGM	6653A
American Redstart	<i>Setophaga ruticilla</i>	FL	7/12/2003	Protected	RGM	6653A
American Robin	<i>Turdus migratorius</i>	FL	7/4/2000	Protected	DJF	6553B
American Robin	<i>Turdus migratorius</i>	FY	6/30/2000	Protected	RGM	6653A
Baltimore Oriole	<i>Icterus galbula</i>	FL	7/14/2004	Protected	LB	6553B
Baltimore Oriole	<i>Icterus galbula</i>	ON	5/25/2000	Protected	RGM	6653A
Bank Swallow	<i>Riparia riparia</i>	ON	7/8/2000	Protected	DJF	6553B
Bank Swallow	<i>Riparia riparia</i>	ON	6/16/2002	Protected	RGM	6653A
Barn Swallow	<i>Hirundo rustica</i>	X1	7/8/2000	Protected	DJF	6553B
Barn Swallow	<i>Hirundo rustica</i>	NY	7/6/2004	Protected	RGM	6653A
Belted Kingfisher	<i>Ceryle alcyon</i>	X1	7/31/2004	Protected	LB	6553B
Belted Kingfisher	<i>Ceryle alcyon</i>	X1	7/23/2004	Protected	RGM	6653A
Black-capped Chickadee	<i>Poecile atricapillus</i>	D2	7/8/2000	Protected	DJF	6553B
Black-capped Chickadee	<i>Poecile atricapillus</i>	FY	5/31/2003	Protected	RGM	6653A
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	X1	6/20/2004	Protected	LB	6553B
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	FL	7/7/2000	Protected	RGM	6653A
Blue Jay	<i>Cyanocitta cristata</i>	FY	7/6/2000	Protected	DJF	6553B
Blue Jay	<i>Cyanocitta cristata</i>	FY	6/30/2000	Protected	RGM	6653A
Blue-winged Warbler	<i>Vermivora pinus</i>	FL	7/12/2003	Protected	RGM	6653A
Brown Thrasher	<i>Toxostoma rufum</i>	FY	7/1/2004	Protected	LB	6553B
Brown Thrasher	<i>Toxostoma rufum</i>	FL	8/6/2003	Protected	RGM	6653A
Brown-headed Cowbird	<i>Molothrus ater</i>	FY	7/4/2000	Protected	DJF	6553B
Brown-headed Cowbird	<i>Molothrus ater</i>	FL	7/28/2003	Protected	RGM	6653A
Canada Goose	<i>Branta canadensis</i>	FL	6/8/2004	Game Species	LB	6553B
Canada Goose	<i>Branta canadensis</i>	FL	5/31/2003	Game Species	RGM	6653A
Carolina Wren	<i>Thryothorus ludovicianus</i>	T2	7/8/2000	Protected	DJF	6553B
Carolina Wren	<i>Thryothorus ludovicianus</i>	ON	7/26/2002	Protected	RGM	6653A



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Common Name	Scientific Name	Behavior Code	Date	NY Legal Status	Volunteer	Block
Cedar Waxwing	<i>Bombycilla cedrorum</i>	ON	6/16/2001	Protected	DJF	6553B
Cedar Waxwing	<i>Bombycilla cedrorum</i>	P2	6/30/2000	Protected	RGM	6653A
Chimney Swift	<i>Chaetura pelagica</i>	X1	6/8/2004	Protected	LB	6553B
Chimney Swift	<i>Chaetura pelagica</i>	X1	6/16/2001	Protected	RGM	6653A
Clapper Rail	<i>Rallus longirostris</i>	S2	7/8/2000	Protected	DJF	6553B
Clapper Rail	<i>Rallus longirostris</i>	X1	5/25/2000	Protected	RGM	6653A
Common Grackle	<i>Quiscalus quiscula</i>	FY	7/6/2000	Protected	DJF	6553B
Common Grackle	<i>Quiscalus quiscula</i>	FY	7/12/2003	Protected	RGM	6653A
Common Tern	<i>Sterna hirundo</i>	FY	7/8/2000	Threatened	DJF	6553B
Common Yellowthroat	<i>Geothlypis trichas</i>	FY	6/16/2001	Protected	DJF	6553B
Common Yellowthroat	<i>Geothlypis trichas</i>	FY	7/12/2003	Protected	RGM	6653A
Cooper's Hawk	<i>Accipiter cooperii</i>	X1	6/20/2004	Protected-Special Concern	LB	6553B
Downy Woodpecker	<i>Picoides pubescens</i>	FL	7/6/2000	Protected	DJF	6553B
Downy Woodpecker	<i>Picoides pubescens</i>	FL	7/12/2003	Protected	RGM	6653A
Eastern Kingbird	<i>Tyrannus tyrannus</i>	X1	6/17/2004	Protected	LB	6553B
Eastern Kingbird	<i>Tyrannus tyrannus</i>	ON	7/2/2000	Protected	RGM	6653A
Eastern Phoebe	<i>Sayornis phoebe</i>	X1	7/1/2004	Protected	LB	6553B
Eastern Screech-Owl	<i>Megascops asio</i>	S2	7/15/2001	Protected	DJF	6553B
Eastern Screech-Owl	<i>Megascops asio</i>	X1	6/26/2002	Protected	RGM	6653A
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	X1	7/8/2000	Protected	DJF	6553B
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	FY	7/23/2004	Protected	RGM	6653A
Eastern Wood-Pewee	<i>Contopus virens</i>	S2	6/16/2001	Protected	DJF	6553B
Eastern Wood-Pewee	<i>Contopus virens</i>	FL	7/6/2004	Protected	RGM	6653A
European Starling	<i>Sturnus vulgaris</i>	FL	6/11/2004	Unprotected	LB	6553B
European Starling	<i>Sturnus vulgaris</i>	FL	6/30/2000	Unprotected	RGM	6653A
Fish Crow	<i>Corvus ossifragus</i>	X1	7/8/2000	Protected	DJF	6553B
Fish Crow	<i>Corvus ossifragus</i>	X1	7/31/2004	Protected	RGM	6653A
Gray Catbird	<i>Dumetella carolinensis</i>	FY	7/6/2000	Protected	DJF	6553B
Gray Catbird	<i>Dumetella carolinensis</i>	FL	6/29/2002	Protected	RGM	6653A
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	X1	6/16/2001	Protected	DJF	6553B
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	FY	6/16/2002	Protected	RGM	6653A
Great Egret	<i>Ardea alba</i>	X1	6/11/2004	Protected	LB	6553B
Great Egret	<i>Ardea alba</i>	X1	6/25/2000	Protected	RGM	6653A
Green Heron	<i>Butorides virescens</i>	P2	7/1/2004	Protected	LB	6553B
Green Heron	<i>Butorides virescens</i>	P2	7/26/2002	Protected	RGM	6653A
Hairy Woodpecker	<i>Picoides villosus</i>	S2	7/8/2000	Protected	DJF	6553B
Hairy Woodpecker	<i>Picoides villosus</i>	FL	7/25/2003	Protected	RGM	6653A



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Common Name	Scientific Name	Behavior Code	Date	NY Legal Status	Volunteer	Block
Herring Gull	<i>Larus argentatus</i>	FL	7/6/2004	Protected	LB	6553B
Horned Lark	<i>Eremophila alpestris</i>	T2	7/8/2000	Protected-Special Concern	DJF	6553B
House Finch	<i>Carpodacus mexicanus</i>	FL	7/1/2004	Protected	LB	6553B
House Finch	<i>Carpodacus mexicanus</i>	ON	6/10/2003	Protected	RGM	6653A
House Sparrow	<i>Passer domesticus</i>	FL	6/17/2004	Unprotected	LB	6553B
House Sparrow	<i>Passer domesticus</i>	FY	5/31/2003	Unprotected	RGM	6653A
House Wren	<i>Troglodytes aedon</i>	S2	7/8/2000	Protected	DJF	6553B
House Wren	<i>Troglodytes aedon</i>	FL	7/19/2002	Protected	RGM	6653A
Indigo Bunting	<i>Passerina cyanea</i>	X1	6/11/2004	Protected	LB	6553B
Indigo Bunting	<i>Passerina cyanea</i>	FY	7/28/2003	Protected	RGM	6653A
Killdeer	<i>Charadrius vociferus</i>	P2	7/1/2004	Protected	LB	6553B
Killdeer	<i>Charadrius vociferus</i>	DD	7/16/2002	Protected	RGM	6653A
Least Tern	<i>Sterna antillarum</i>	NY	7/8/2000	Threatened	DJF	6553B
Mallard	<i>Anas platyrhynchos</i>	P2	6/11/2004	Game Species	LB	6553B
Mallard	<i>Anas platyrhynchos</i>	NY	6/30/2000	Game Species	RGM	6653A
Marsh Wren	<i>Cistothorus palustris</i>	S2	7/8/2000	Protected	DJF	6553B
Mourning Dove	<i>Zenaida macroura</i>	NE	6/17/2004	Protected	LB	6553B
Mourning Dove	<i>Zenaida macroura</i>	FL	8/6/2003	Protected	RGM	6653A
Mute Swan	<i>Cygnus olor</i>	FL	7/4/2000	Protected	DJF	6553B
Mute Swan	<i>Cygnus olor</i>	NE	5/22/2000	Protected	RGM	6653A
Northern Bobwhite	<i>Colinus virginianus</i>	P2	6/20/2004	Game Species	LB	6553B
Northern Cardinal	<i>Cardinalis cardinalis</i>	FY	7/6/2000	Protected	DJF	6553B
Northern Cardinal	<i>Cardinalis cardinalis</i>	FL	7/19/2002	Protected	RGM	6653A
Northern Flicker	<i>Colaptes auratus</i>	T2	7/8/2000	Protected	DJF	6553B
Northern Flicker	<i>Colaptes auratus</i>	FL	7/25/2003	Protected	RGM	6653A
Northern Mockingbird	<i>Mimus polyglottos</i>	FY	7/4/2000	Protected	DJF	6553B
Northern Mockingbird	<i>Mimus polyglottos</i>	FL	6/30/2000	Protected	RGM	6653A
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	FL	7/8/2000	Protected	DJF	6553B
Orchard Oriole	<i>Icterus spurius</i>	FY	6/29/2003	Protected	RGM	6653A
Osprey	<i>Pandion haliaetus</i>	T2	7/6/2004	Protected-Special Concern	LB	6553B
Ovenbird	<i>Seiurus aurocapilla</i>	S2	6/5/2003	Protected	RGM	6653A
Piping Plover	<i>Charadrius melodus</i>	NE	6//2000	Endangered	KF	6553B
Piping Plover	<i>Charadrius melodus</i>	NE	5/24/2002	Endangered	MRW	6653A
Prairie Warbler	<i>Dendroica discolor</i>	T2	6/17/2004	Protected	LB	6553B
Prairie Warbler	<i>Dendroica discolor</i>	FL	7/25/2003	Protected	RGM	6653A



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Common Name	Scientific Name	Behavior Code	Date	NY Legal Status	Volunteer	Block
Purple Martin	<i>Progne subis</i>	ON	7/2/2003	Protected	MRW	6553B
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	D2	6/16/2001	Protected	DJF	6553B
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	ON	6/24/2003	Protected	RGM	6653A
Red-eyed Vireo	<i>Vireo olivaceus</i>	S2	7/8/2000	Protected	DJF	6553B
Red-eyed Vireo	<i>Vireo olivaceus</i>	FY	7/17/2003	Protected	RGM	6653A
Red-tailed Hawk	<i>Buteo jamaicensis</i>	P2	6/20/2004	Protected	LB	6553B
Red-tailed Hawk	<i>Buteo jamaicensis</i>	X1	6/30/2000	Protected	RGM	6653A
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	FY	6/17/2004	Protected	LB	6553B
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	DD	7/7/2000	Protected	RGM	6653A
Ring-necked Pheasant	<i>Phasianus colchicus</i>	X1	7/1/2004	Game Species	RGM	6653A
Rock Pigeon	<i>Columba livia</i>	P2	6/11/2004	Unprotected	LB	6553B
Rock Pigeon	<i>Columba livia</i>	NE	8/6/2003	Unprotected	RGM	6653A
Scarlet Tanager	<i>Piranga olivacea</i>	T2	7/7/2003	Protected	RGM	6653A
Snowy Egret	<i>Egretta thula</i>	X1	6/11/2004	Protected	LB	6553B
Snowy Egret	<i>Egretta thula</i>	X1	6/25/2000	Protected	RGM	6653A
Song Sparrow	<i>Melospiza melodia</i>	FY	7/6/2004	Protected	LB	6553B
Song Sparrow	<i>Melospiza melodia</i>	FY	7/20/2001	Protected	RGM	6653A
Spotted Sandpiper	<i>Actitis macularia</i>	D2	7/6/2004	Protected	LB	6553B
Tree Swallow	<i>Tachycineta bicolor</i>	X1	6/11/2004	Protected	LB	6553B
Tufted Titmouse	<i>Baeolophus bicolor</i>	FL	7/8/2000	Protected	DJF	6553B
Tufted Titmouse	<i>Baeolophus bicolor</i>	FY	5/31/2000	Protected	RGM	6653A
Veery	<i>Catharus fuscescens</i>	X1	7/23/2001	Protected	RGM	6653A
Warbling Vireo	<i>Vireo gilvus</i>	S2	7/8/2000	Protected	DJF	6553B
White-breasted Nuthatch	<i>Sitta carolinensis</i>	FY	7/8/2000	Protected	DJF	6553B
White-breasted Nuthatch	<i>Sitta carolinensis</i>	FL	7/23/2001	Protected	RGM	6653A
White-eyed Vireo	<i>Vireo griseus</i>	FL	7/12/2003	Protected	RGM	6653A
Willow Flycatcher	<i>Empidonax traillii</i>	X1	7/8/2000	Protected	DJF	6553B
Willow Flycatcher	<i>Empidonax traillii</i>	X1	6/10/2003	Protected	RGM	6653A
Wood Thrush	<i>Hylocichla mustelina</i>	X1	7/8/2000	Protected	DJF	6553B
Wood Thrush	<i>Hylocichla mustelina</i>	FL	7/12/2003	Protected	RGM	6653A
Yellow Warbler	<i>Dendroica petechia</i>	FY	7/6/2000	Protected	DJF	6553B
Yellow Warbler	<i>Dendroica petechia</i>	FY	6/29/2003	Protected	RGM	6653A
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	S2	6/10/2003	Protected	RGM	6653A
Yellow-crowned Night-Heron	<i>Nyctanassa violacea</i>	X1	7/6/2000	Protected	DJF	6553B
Yellow-crowned Night-Heron	<i>Nyctanassa violacea</i>	NY	6/30/2000	Protected	RGM	6653A



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APPENDIX F

RECOMMENDATIONS FROM PREVIOUS MT. SINAI HARBOR MANAGEMENT DOCUMENTS

- NYSDEC Draft Habitat Management Strategy for Mt. Sinai Harbor, NY (1998)
- Town of Brookhaven Draft Local Waterfront Revitalization Plan (1990)
- Mt. Sinai Hamlet Study (February 1996)



MT. SINAI HARBOR MANAGEMENT PLAN



PREVIOUS RECOMMENDATIONS

New York State Department of Environmental Conservation A Habitat Management Strategy for Mt. Sinai Harbor, NY November 1998

Habitat/Natural Resource Preservation and Restoration:

1. Runoff should be directed away from the harbor, or held for settling or filtration.
2. Removal of the invasive *Phragmites* species should be performed and the area replanted with native marsh grass.
3. Restoration of tidal wetlands should be accomplished through the removal of salt marsh peat, grading of the land and replanting of *Spartina* species.
4. Maintenance of containment basins and leaching fields should be performed.
5. Acquisition of tidal wetlands on the Poor Clares, Davis-Were and Chandler properties and freshwater wetlands on the Chandler property and Crystal Brook Hollow Road should be a priority.
6. Revision of the frequency, depth and areal extent of dredging performed in the harbor to protect the existing marshes.
7. Biological surveying should be performed on mudflats to determine the distribution and abundance of populations of benthic organisms other than shellfish; plush shellfish surveys in areas closed to shellfishing with those closed seasonally and those open to shellfishing.
8. Watercraft activity south of the boat basin should be banned and the speed limit within the basin should be enforced.
9. The trapping of horseshoe crabs through the inlet should be banned or regulated in order to preserve the population and the chain of organisms they provide for.
10. Proper water quality and environmental parameters should be established that will provide for an introduction of eelgrass beds.
11. Dunes and vegetation in the nature center area and other natural areas should be maintained through the use of fencing.
12. The presence of boats and pedestrians along the western spit during the summer months should be banned to encourage the re-establishment of a piping plover nesting site.
13. Surveys of finfish, macrocrustaceans and plankton in subtidal and intertidal areas should be performed seasonally and repeated for several years to determine the extent of these populations.
14. Creation of new habitat and buffering of existing habitat of water birds from human activity to encourage more breeding populations should be implemented.
15. The Chandler property should be listed on the 1997 New York State Open Space Plan for Region 1 and discussion with developers of acquisition of the property. (Already accomplished in 2000).
16. The Poor Clares and Franciscan Brothers properties should be listed on the 1999 revision of the Open Space plan, and a plan should be developed for acquiring the properties.
17. Revival of the harbor's status as a marine sanctuary should be a priority and that status should be used to protect the habitats and open space within and around the harbor.
18. The Town should consider banning hunting and commercial shellfishing and encourage the use of the area as a research reserve and a possible retreat for visiting scientists in the Nature Center.

Water Quality:

1. A regular water quality monitoring program should continue in the northern section of the harbor by the Suffolk County Department of Health Services, and implementation of monitoring in all other areas of the harbor should begin.
2. The development of a plan for the best use of lawn chemicals, fertilizers and swimming pools should be considered, so as to reduce the likelihood of contributing to non-point pollution from these sources.



MT. SINAI HARBOR MANAGEMENT PLAN



PREVIOUS RECOMMENDATIONS

3. Control of stormwater runoff from Crystal Brook Hollow Road, Old Post Road, Shore Road and Pipe Stave Hollow Road should be taken.
4. Development of a public education program regarding on site disposal systems toward older homes surrounding the harbor should be addressed.

Source: As presented in "A Habitat Management Strategy for Mt. Sinai Harbor, NY" (Decker, 1998).

Town of Brookhaven Draft Local Waterfront Revitalization Plan 1990

1. In order to protect the fringing salt marsh along the perimeter of Harbor Beach Road on Cedar Beach from parking and pedestrians seeking boat access, the Town should:
 - a) Place barriers along the shoulder to prevent cars from parking in the wetland; and
 - b) Establish defined pathways for pedestrians across the wetlands in order to minimize the damage.
2. The Town should evaluate prohibiting water skiing and "jet skis" within the harbor.
3. In order to minimize the possibility of water contamination by boat waste, enforcement of the use of pumpout facilities is essential. In addition, public restrooms must be available to owners of boats without toilets.
4. Waste oil collection should be established at the Town marina and signs posted at all of the marinas notifying boat owners of this collection. The use of bilge cleaners should be prohibited within the harbor and such prohibition should be posted.
5. Because of steep slopes around the harbor, erosion control must be established prior to all site development and areas of surface runoff erosion must be restored and steps undertaken to prevent additional erosion.
6. Erosion of the southwestern tip of Cedar Beach is occurring and should be addressed with a structural solution such as rip-rap or gabions.
7. Cedar beach should have a mix of "marine commercial", "open space and recreation", and "conservation" zoning. The undeveloped Town parks on the perimeter of the Harbor should be considered for "conservation" zoning. Satterly's Landing should be considered for "marine commercial" zoning.
8. The harbor itself should be re-evaluated for rezoning. The marina and mooring area may need to be zoned "estuarine". The wetlands may need to be zoned "conservation".
9. The fishing pier at the western tip of Cedar Beach should be maintained.
10. There is a nature center maintained by the Town Division of Environmental Protection at Cedar Beach. Recommendations for this facility are as follows:
 - a) The educational activities sponsored by the Center should be continued; and
 - b) The aquaculture facilities at the center should be maintained and expanded, if justifiable, so that larger areas of Town-owned underwater land can be enhanced.
11. The three marinas west of the Town marina-Ralph's Fishing Station, Mount Sinai Yacht Club and Old Man's Boatyard-fulfill an important demand and their continued operation should be encouraged. However, a short- and long-term integrated development plan should be developed and implemented for the three.
12. The Town should implement a moratorium on moorings in the harbor. This moratorium should include not allowing the transfer of moorings when they are not being used. During the moratorium the Town should conduct a harbor management study to determine if the number of boats moored in the harbor needs to be reduced.



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PREVIOUS RECOMMENDATIONS

13. There is shoaling at Ralph's Fishing Station. If it persists, dredging should be facilitated by regulatory agencies provided the spoil is used for beach maintenance.
14. There is not enough parking at Cedar Beach to meet demand. The Town should consider improving access through a park -and-ride or feeder bus system from an inland parking site.
15. Increased public access through the undeveloped, Town-owned parklands around the southern end of the harbor is inappropriate.
16. Current parking areas along Shore Road near the water should be improved.
17. The Town has one developed park in the southern end of the harbor, Satterly's Landing. The Public facilities (parking, bulkhead, ramp for canoes) here should be maintained. This site was developed by the Town to provide a loading/unloading facility for commercial lobster boats but its access is limited by shallow water at low tide; the channel and area around Satterly's Landing should be dredged to improve access.
18. The soft clam (*Mya arenaria*) populations in the harbor, although probably small, provide some of the most accessible harvesting in the Town. The Town should consider allowing only recreational shellfishing in the harbor.
19. An area of the harbor should be dedicated to commercial fishing boats and a commercial dock for both mooring and loading/unloading should be established. The Town should also consider adopting a policy of not allowing recreational activities to displace commercial fishing activities.
20. Hunting, which is done for waterfowl, is not consistent with Mt. Sinai Harbor's status as a "marine sanctuary" area and the use of the harbor for this activity should be re-evaluated.
21. The Town should develop a natural resource database on the harbor and its associated uplands. This information should be incorporated into the materials and programs at the Nature Center.

Source: As presented in the "Town of Brookhaven Draft Local Waterfront Revitalization Plan" (TOB, 1990).

Town of Brookhaven Mt. Sinai Hamlet Study February 1996

1. Current stormwater runoff into the harbor should be mitigated by the Town through the use, where feasible, of "environmentally-friendly" means, such as artificial wetlands. Points of runoff to be addressed should include those at the southern end of the harbor, coming from Old Post Road, Shore Road (both from the western side and from the eastern side off Seaview Lane), and Pipe Stave Hollow Road. This mitigation would occur in addition to control measures to be implemented by future development on currently -vacant parcels of land around the harbor (e.g. the Chandler, Franciscan Brothers, and Little Sisters of Poor Clare properties).
2. Pursuant to the federal Clean Vessel Act, the Town should apply to make the harbor a No Discharge Zone with respect to sewage from recreational boats. There is currently one operating pump-out station in the harbor. The Town should supply more if they are required for NDZ designation.
3. The Town should maintain the status of the harbor as a Marine Sanctuary and should seek to enhance this designation through appropriate habitat restoration projects (e.g. tidal and freshwater wetlands).
4. The Town should post appropriate signage at Cedar Beach, Satterly's Landing and the public and private boat ramps regarding the Marine Sanctuary status, the five-mile-per-hour speed limit within the harbor, the restrictions on clamming on Sundays, and the prohibition on parking on the boat ramps. The signs should also contain phone numbers which can be called if violations of these laws are noted (for Town Code Enforcement, the bay constable, Suffolk County Marine Police, the Brookhaven Dept. of Environmental Protection, etc.)



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PREVIOUS RECOMMENDATIONS

5. The Town should seek to better enforce the laws listed in the previous section.
6. The Town should specifically ban the use of jet-skis and water-skis in the harbor. Although these activities would seem to be precluded by the five mile per hour speed limit, the fact is that these activities frequently occur and a ban might be more effective in preventing them. These activities are particularly disturbing for the wildlife and a ban would more effectively uphold the preservation of the area as a Sanctuary.
7. The Town should seek to implement the recommendations made by the New York State Departments of State and Environmental Conservation in the Significant Coastal Fish and Wildlife designation of Mt. Sinai Harbor.
8. The Town should seek to develop an overall environmental management plan for the harbor which would include recommendations for water quality improvement, restoration of shellfishing in the southern end, tidal and freshwater habitat restoration and protection, and use of the harbor for a variety of commercial, recreational, and natural preservation purposes.

Source: As presented in the "Mt. Sinai Hamlet Study" (TOB, 1996).



APPENDIX G

PUBLIC EDUCATION MATERIALS

- **Suffolk County Lawn Maintenance Guidelines (Cornell Cooperative Extension)**
- **Suffolk County Low-Maintenance Lawns (Cornell Cooperative Extension)**
- **Lawn Maintenance (CT SeaGrant)**
- **Organic Lawn Guide (Neighborhood Network)**
- **Grass Recycling (NYS Department of Environmental Conservation)**
- **Composting (NYS Department of Environmental Conservation)**
- **Native Plant Garden (Manhasset Bay Protection Committee)**
- **Rain Barrels & Rain Gardens (Center for Watershed Protection)**
- **After the Storm (U.S. EPA)**
- **Stormwater Crossword Puzzle (Manhasset Bay Protection Committee)**
- **Household Hazardous Waste Disposal & Alternatives (NYS DEC)**
- **Pet Waste (Long Island Sound Study)**
- **Pathogens (Long Island Sound Study)**
- **Environmentally Responsible Boating (CT SeaGrant)**
- **Bilge Socks for Boats (Manhasset Bay Protection Committee)**
- **Septic System Maintenance (CT Sea Grant)**
- **Septic Systems (Long Island Sound Study)**
- **Four Seasons of Water Quality Protection (CT SeaGrant)**



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APPENDIX I

COMMENTS ON DRAFT PLAN AND RESPONSES



MT. SINAI HARBOR MANAGEMENT PLAN



SUMMARY OF COMMENTS AND RESPONSES ON DRAFT PLAN

A public hearing was held on the draft Harbor Management Plan on November 20, 2007, and the Town accepted written public and agency comments through November 30, 2007. The following presents all of the comments (summarized or directly quoted) that were provided verbally at the November 20, 2007 hearing and those received in written form during the public comment period, along with a response to each. The transcript of the public hearing and written comments are provided following this summary. Each comment has been delineated and numbered sequentially. The numbering system includes a letter code that indicates the source of the comment, followed by a number that is assigned to each consecutive comment from that source.

2.1 Natural Resources

Comment SCDHS #1:

Page 2-8, last paragraph, second to last sentence: to the best of my knowledge, monitoring programs are not geared towards identifying pathogenic bacteria and viruses, but rather indicator organisms such as coliform bacteria that may suggest their presence.

Response:

The sentence has been reworded and clarified.

Comment SCDHS #2:

Page 2-10, second paragraph - could stand to be more specific here:

- *The harbor was found to be the "cleanest" of the 6 north shore embayments studied - clean in terms of what?*
- *It was predicted to have degraded resources in the future - which resources?*
- *Recent data collected by SCDHS illustrates the harbor has good water quality - they should indicate when the data was collected and provide a citation. Referencing some comparative concentration ranges/averages (nitrogen, coliforms, oxygen) would be a plus here*

Response:

The discussion on water quality within the Harbor has been expanded to include more detailed information on the data collected by SCDHS from 1977-2003 with a citation to the North Shore Embayments Watershed Management Plan (SCDHS, 2007) where the analysis and characterization of the dataset is discussed at length.

Comment SCDHS #3:

Page 2-10, third paragraph: Although historically there are 10 sampling sites in the harbor, only 5 have been sampled since the late 1990s, including under the NSEWQMP. Monitoring parameters also include ammonia, total and dissolved nitrogen, total and dissolved phosphorus, and ortho-phosphate.

Response:

The historic and present number of sampling stations has been clarified, and additional monitoring



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parameters have been added to the text.

Comment SCDHS #4:

Page 2-10, fifth paragraph, second sentence: SCDHS "collects water quality data and monitors coliform levels". Perhaps it should be worded differently - collects water quality data, including that regarding levels of nutrients, coliform bacteria, chlorophyll-a, dissolved oxygen, etc..... The reference to 10 sampling stations is repeated here.

Response:

The sentence has been reworded to include monitored parameters and to clarify the number of currently sampled stations.

Comment SCDHS #5:

Page 2-10, last paragraph: Julie Ventaloro's name is misspelled.

Response:

The spelling of Ms. Ventaloro's name has been corrected.

Comment SCDHS #8:

Under Section 2.1.4- It should be plainly stated that Mt. Sinai is a contributing embayment to LISS. This is an important factor. Additionally, this section discusses the NYSDEC water quality classifications but does not state which category the Harbor falls into until much later in the section (paragraph 4 under Marine Resources & Water Quality).

Response:

The first paragraph of Section 2.1.4 has been revised to state that Mt. Sinai is a contributing embayment to the Long Island Sound. Additionally, the Harbor's water quality classification has been added to the third paragraph of Section 2.1.4, where the classification system in Table 2-2 is introduced.

Comment SCDHS #9:

Last paragraph on page 2-13- an approximate value should be given for the "Economic value" stated in sentence 1. (i.e.-the PEP CCMP states that in 1982 the PE Scallop harvest had a dockside value of \$1.8 million)

Response:

The dockside dollar value of shellfish harvests in Mt. Sinai Harbor is discussed under the Section 2.2 (Water Uses) and specifically under Section 2.2.3 (Recreational & Commercial Fishing). No revision was made to Section 2.1.5 as the focus of this section is the habitat inventory.

Comment SCDHS #10:

Page 2-14, paragraph 2- The 1st sentence should read "The NYSDEC categorized the water quality of the freshwater springs that feed into the harbor as Class D wetlands, which is the poorest water quality



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rating”. (If stated what the wetlands are classified as it saves the reader from having to flip back several pages to read the classifications again)

Response:

The first sentence was further clarified to include that Class D is the lowest freshwater classification for designated uses. However, Class D wetlands do not necessarily refer to the poorest water quality rating. The categories refer to best designated uses and therefore are assigned according to both water quality and natural conditions, such as continuous presence of water and size.

Comment SCDHS #11:

Page 2-15, Tidal wetlands section- There should be a hypothesis on why the tidal marsh is shrinking (i.e. Poor water quality, sea level rise, both?)

Response:

Hypotheses for vegetated marsh loss are provided in the sub-section entitled “Loss of Tidal Wetlands.” This sub-section has been moved up and is now located immediately below the sub-section entitled “Tidal Wetlands.”

Comment SCDHS #12:

Misprint- Page 2-25 is before 2-21 though 2-24.

Response:

This comment refers to a printing error in the reviewer’s document.

Comment SCDHS #13:

Page 2-21, paragraph 3-This paragraph discusses the sand depletion of the western side of the inlet. A recommendation on what should be done (i.e.-all new dredging permits should have a condition which states all beach compatible dredge material should be deposited on the western side of the inlet.

Response:

Section 2 describes the existing conditions within Mt. Sinai Harbor. All recommendations for improvements may be found in Section 5 (Recommendations).

2.2 Water Uses

Comment SCDHS #14:

Page 2-29, Horseshoe Crab Section- The limit on horseshoe crab harvest should be clarified. Is 150,000 a year a total for the entire state or for individual harvesters?

Response:

The 150,000 limit is state-wide and has been clarified in the text. Individual limits for harvesters have additionally been added.



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Comment RH #1:

Mgmt Plan Statement: “This seasonal sport occurs in the late fall and winter months”

Correction: The waterfowl hunting season takes place during late summer, fall and winter. Canadian Geese are hunted in the harbor, and their season begins on September 4th for the 2007-2008 season. See accurate dates from the DEC, on page 2. If you are going to list hunting dates for individual species, please specify which year’s season you are referring to, since dates change slightly from year to year.

Response:

The text has been revised with dates specific to the 2007-2008 season.

Comment RH #1:

Mgmt Plan Statement: “Hunting was not considered to be a problem in the Harbor until about 1990-2000 when increased residential development brought in people who were fearful of the sport (Kessler, 2005).”

Correction: Craig Kessler is a representative of Ducks Unlimited, a hunting organization, and the statement above is his personal opinion. Mr. Kessler’s assumptions are not correct, but regardless, are completely inappropriate for inclusion in the Harbor Management Plan. It was in 2003 that Residents brought their safety concerns to the Town – that does not mean that firearms in the harbor were ‘not considered to be a problem’ before that time. I am offended that he assumes increased development “brought in” people “fearful of the sport”. Simply not true on either count. I am strongly requesting that you eliminate Mr. Kessler’s personal opinion from the Management Plan.

Response:

The text has been revised to exclude Mr. Kessler’s personal comment.

Comment RH #2:

Mgmt Plan Statement: “As a compromise between local sportsmen and resident, in 2003, the southeastern portion of the Harbor, near the water’s Edge subdivision, was made off-limits to duck hunters.”

Correction: There was not a compromise between sportsmen and residents. The two groups met with the Town, both individually and at several Town Board meetings. The Town Board listened to both sides, and issued an Executive Order on September 1st, 2003 to restrict the discharge of firearms (not ‘off-limits to duck hunters’) near the Tide’s Edge (not Water’s Edge) subdivision. Water’s Edge is the name of the nearest street – Tide’s Edge is the name of the subdivision.

Response:

The text has been revised in accordance with the comment.

Comment RH #3:

Mgmt Plan Statement: “The Town has posted signs prohibiting waterfowl hunting inside this “line” and the NYSDEC agreed to enforce this “line”.”

Correction: The Town posed signs, and anchored two buoys to the harbor bottom to restrict the discharge of firearms, not ‘prohibiting waterfowl hunting’ inside the parameters described in the Executive Order.



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Response:

The text has been revised in accordance with the comment.

Comment RH #4:

Missing from the Mgmt Plan: The Town has an ordinance, 10-23, which restricts the carrying or discharge of firearms on Town owned or controlled property for the health, welfare and safety of its residents. It has been confirmed by the Town's Division of Environmental Protection that the Harbor Bottom under Mount Sinai Harbor is Town of Brookhaven property. It is the official position of the Town's Law Department (source: David Moran's 3/6/07 letter to Inspector Frank Stallone, 6th Precinct) that anyone walking/wading in Mount Sinai Harbor carrying a firearm or fowling piece, whether or not there has been any discharge of firearm or fowling piece is subject to prosecution under 10-23.

Response:

The text has been revised to include information on Section 10-23 of the Town Code concerning firearms.

2.3 Land Use & Zoning

Comment SCDHS #15:

Page 2-48, 3rd paragraph- is the 63.5 acres of vacant land in the drainage area in addition to the 9.9 acres within the Management Area or does it include the 9.9 acres?

Response:

The text has been clarified to indicate that the 63.5 acres of vacant land in the drainage area includes the 9.9 acres within the Harbor management area.

Comment SCDHS #16:

Page 2-49, last paragraph- Same comment as SCDHS #15

Response:

The text has been clarified to indicate that the 48 acres of potentially developable vacant land in the drainage area includes the 10 acres within the Harbor management area.

Comment SCDHS #17:

Page 2-52 through 2-54- This entire section should have recommendations listed with the opportunities (with a summary in Section 5, as they relate to the goals)

Response:

The comment is acknowledged; however, the format and organization of the report were established by the consultant, Town of Brookhaven and NYS Department of State during the initial document scoping. Section 2 pertains to the inventory of existing conditions and opportunities within Mt. Sinai Harbor. All recommendations for improvements may be found in Section 5 (Recommendations) as they relate to the goals and objectives of the Harbor Management Plan.



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4.0 Goals & Objectives

Comment SCDHS #6:

The Goals should be Section 2, after the introduction. This will help the reader understand what the background information in Section 2 is for.

Response:

Please refer to response to SCDHS comment #17.

5.0 Recommendations

Comment SCDHS #7:

The recommendations listed in Section 5 should be incorporated into the appropriate parts of existing Section 2. Section 5 should be a summary of recommendations in relation to the goals listed in the NEW section 2.

Response:

Please refer to response to SCDHS comment #17.

Comment FD #1:

A copy of the completed report should be sent to the Stony Brook University archives section.

Response:

An electronic copy of the final Mt. Sinai Harbor Management Plan will be provided to the Stony Brook University archives by the Town of Brookhaven.

Comment FD #2:

In reference to the educational aspects, one of the goals written in the study was to enhance and explore various educational areas around the harbor, certainly in the town. And hopefully the Town will work closely in the Chandler property.

Response:

The implementation strategy outlined in Section 6 includes the Town of Brookhaven as being responsible for the initiation of coordination with Suffolk County Parks Department to integrate the recommendations of the Mt. Sinai Harbor Management Plan regarding trail connectivity into the Chandler Estate Management Plan (which is currently being developed by the County).

Comment FD #3:

This comment suggests that parking by Crystal Brook Hollow Road, currently only available by permit to Village of Port Jefferson resident, should be opened to the general public to permit access and use of Crystal Brook Pond as an educational and passive recreational area. The commenter also notes that the existing trails in this area are in need of maintenance to improve access.



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Response:

A recommendation has been made in Section 5 under Goal #4 (Balanced Management of Water and Land Uses of Mt. Sinai Harbor) and in the implementation portion of Section 6 for the Town to explore opening of the parking area on the Village Property near Ronald Court to the general public.

Comment FD #4:

This comment recommends that the Town pursue more rigorous outreach to schools to incorporate Mt. Sinai Harbor and its history into the curriculum.

Response:

The implementation strategy identifies the Town of Brookhaven as being responsible for maintaining and expanding the existing environmental educational programs at the Nature Center, which offers hands-on programs to local school districts at the Mt. Sinai Harbor facility. The implementation strategy also identifies the Village of Port Jefferson as responsible for coordinating with the Town on public education programs focused on the Harbor.

Comment FD #5:

This comment expresses the need for invasive species management within the Harbor..

Response:

Invasive species are recognized as a threat to ecological resources in Section 2. The eradication or reduced extent of invasive vegetation (e.g. *Phragmites australis*) within the Harbor management area has been included in Section 6 as an Operational & Budgeting Activity for municipally owned lands of the Town of Brookhaven, Village of Port Jefferson and Suffolk County Department of Parks.

Comment FD #6:

This comment expresses concern for growing deer populations in the area and questions if the Town can explore management options.

Response:

The management of deer was not a scoped issue for the Harbor Management Plan.

Comment FD #7:

This comment expresses concern for maintenance of the western jetty at Mt. Sinai.

Response:

An item has been included in the implementation section of Section 6 for the Town of Brookhaven to coordinate with the NYSDOS and U.S. Army Corps of Engineers regarding the design, construction and available funding for the re-building of the existing or an alternative jetty design that can still be used as a fishing pier and facilitates the passage of sand westward toward the Village beaches.



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Comment SA #1:

My greatest concern with the issues in the harbor is storm water runoff, and I've been a very strong advocate, which is the number one source of water pollution. I hope the Town proactively pursues remediation and follows as represented the Mount Sinai improvement project summarized on pages 56 through 63. Implementing pollution reduction will help create a healthier harbor and help the people who use the harbor.

Response:

As stated in the comment, several recommended stormwater improvement projects have been identified in the Harbor Management Plan to improve the water quality in Mt. Sinai Harbor.

Comment SA #2:

This comment suggests that a walking path be established along Mount Sinai Harbor.

Response:

Section 6 currently includes several implementation items for the Town of Brookhaven, Village of Port Jefferson and Suffolk County Department of Parks to establish shoreline trails (including along Pipe Stave Hollow Road and Shore Road), as well as coordinate to improve public access to the entire proposed trail system.

Comments provided by:

SCDHS = Suffolk County Department of Health Services

SA = Sarah Anker

FD = Fred Drewes

RH = Randi Hoehl