
COASTAL FISH & WILDLIFE HABITAT ASSESSMENT FORM

Name of Area: **Mt. Sinai Harbor**
County: **Suffolk**
Town(s): **Brookhaven**
7½' Quadrangle(s): **Port Jefferson, NY**
Originally Designated: **March 15, 1987**
Modified: **October 15, 2005**

Assessment Criteria	Score
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Ecosystem Rarity (ER)--the uniqueness of the plant and animal community in the area and the physical, structural, and chemical features supporting this community.

ER assessment: One of only a few relatively large, undeveloped, coastal wetland areas on the north shore of Long Island; rare in ecological subregion. 16

Species Vulnerability (SV)--the degree of vulnerability throughout its range in New York State of a species residing in the ecosystem or utilizing the ecosystem for its survival (E = Endangered, T = Threatened, SC = Special concern).

SV assessment: Documented feeding area for least tern (T). Common loon (SC) wintering area. Additive Division: $25 + 16/2 = 33$ 33

Human Use (HU)-- the conduct of significant, demonstrable commercial, recreational, or educational wildlife-related human uses, either consumptive or non-consumptive, in the area or directly dependent upon the area.

HU assessment: One of the prime areas for recreational and commercial shellfishing on the north shore of Long Island, especially important for its soft clam commercial harvest, which is one of the most important on Long Island. Locally important for environmental education. 9

Population Level (PL)--the concentration of a species in the area during its normal, recurring period of occurrence, regardless of the length of that period of occurrence.

PL assessment: Shellfish concentration unusual on the north shore of Suffolk County. 4

Replaceability (R)--ability to replace the area, either on or off site, with an equivalent replacement for the same fish and wildlife and uses of those same fish and wildlife, for the same users of those fish and wildlife.

R assessment: Irreplaceable. 1.2

Habitat Index = [ER + SV + HU + PL] = 62.0

Significance = HI x R = 74.4

NEW YORK STATE
SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT
NARRATIVE

MT. SINAI HARBOR

LOCATION AND DESCRIPTION OF HABITAT:

Mt. Sinai Harbor is located approximately one mile northeast of the Village of Port Jefferson, on the north shore of Long Island. This is approximately a 470 acre area is located in the Town of Brookhaven, Suffolk County (7.5' Quadrangle: Port Jefferson, NY). The fish and wildlife habitat consists of salt marsh, intertidal mudflats, and open water area in the harbor, excluding the area along the western part of Cedar Beach, which is heavily developed as a marina and boat mooring area. Most of Mt. Sinai Harbor is less than 6 feet deep at mean low water. The area is owned by the Town of Brookhaven and is managed for conservation purposes. The bay is bordered by low density residential development and undeveloped woodlands. Losses of tidal wetlands have been documented in Mt. Sinai Harbor; investigation into the cause or causes of these losses is ongoing.

FISH AND WILDLIFE VALUES:

Mt. Sinai Harbor is one of several relatively large, undeveloped, coastal wetland areas on Long Island's north shore. The tidal wetlands and intertidal mudflats in this area play an important role as habitat for wading birds, waterfowl, as well as commercially and recreationally important invertebrates and fishes. Shorebirds birds utilizing the area include herons, egrets, gulls, and least terns (T). One pair of piping plover (E, T-Fed) has been documented nesting on Cedar Beach in 2001 and 2002, but the extensive human use of the site does not allow it to be a stable breeding location for plovers. Other probable or confirmed breeding bird species in the area include green heron, belted kingfisher, black-crowned night heron, sharp-tailed sparrow, and swamp sparrow.

Mid-winter aerial surveys of waterfowl abundance for the 10 year period 1990-1999 indicate average annual concentrations of 38 birds or more in the harbor each year (120 in peak year). Waterfowl species utilizing this area during the fall and winter months as foraging and resting grounds include American black duck, mallard, American widgeon, scaup (greater and/or lesser), long-tailed duck, northern pintail, bufflehead, and common loon (SC). Waterfowl use of the bay during winter is influenced, in part, by the extent of ice cover each year.

Mt. Sinai Harbor supports a variety of finfish and shellfish species, including hard clam, soft clam, American oyster, and ribbed mussel. The harbor supports one of the few commercial soft clam shellfisheries on Long Island. Shellfishing at Mount Sinai is exclusive to Brookhaven residents with nearly 63% of the area certified. Mt. Sinai Harbor is also a valuable nursery and foraging area (from April 1 - November 30, generally) for winter flounder, bluefish, blackfish, Atlantic silversides, and Atlantic menhaden.

Historically, diamondback terrapin have been quite common and documented use of the harbor by terrapins from 2001 to 2004 indicates that Mt. Sinai Harbor supports a healthy population of this species. Mt. Sinai Harbor and nearby portions of Long Island Sound may serve as feeding and resting habitat for juvenile Atlantic ridley sea turtles (E), especially during the late summer and fall (August 15-December 15). More documentation is needed on the use of this area by sea turtle species.

The diversity of fish and wildlife species, coupled with the diversity of habitat in the harbor and adjacent environments, offers a valuable opportunity for the development of environmental education amenities; the Town of Brookhaven has a well developed environmental education facility on Cedar Beach which incorporates the surrounding marsh lands into its program.

IMPACT ASSESSMENT:

Any activity that would substantially degrade the water quality in Mt. Sinai Harbor would adversely affect the biological productivity of this area. All species of fish and wildlife would be affected by water pollution, such as chemical contamination (including food chain effects), oil spills, excessive turbidity, and waste disposal (including vessel wastes). Efforts should be made to improve water quality in the harbor, including the reduction and elimination of discharges from vessels and upland sources. Vegetated upland buffer zones should be protected or established to further reduce water quality impairment from upland sources.

Alteration of tidal patterns in Mt. Sinai Harbor could have major impacts on the fish and wildlife communities present. Dredging to maintain existing boat channels should be scheduled between September 15 and December 15 to minimize potential impacts on aquatic organisms, and to allow for placement of dredged material when wildlife populations are least sensitive to disturbance. Dredged material placement in this area would be detrimental, but such activities may be designed to maintain or improve the habitat for certain species of wildlife. Existing and proposed dredging operations in this area should incorporate the use of best management practices to avoid and reduce adverse effects.

Elimination of salt marsh and intertidal areas, through loss of tidal connection, ditching, excavation, or filling, would result in a direct loss of valuable habitat area. Construction of shoreline structures, such as docks, piers, bulkheads, or revetments, in areas not previously disturbed by development, may result in the loss of productive areas which support the fish and wildlife resources of Mt. Sinai Harbor. Alternative strategies for the protection of shoreline property should be examined, including innovative, vegetation-based approaches. Control of invasive nuisance plant species, through a variety of means, may improve fish and wildlife species use of the area and enhance overall wetland values.

Unrestricted use of motorized vessels including personal watercraft in the protected, shallow waters of bays, and tidal creeks of Mt. Sinai Harbor could have adverse effects on aquatic vegetation and

fish and wildlife populations. Use of motorized vessels should be controlled (*e.g.*, no wake zones, speed zones, zones of exclusion) in and adjacent to shallow waters and adjacent wetlands.

Thermal discharges, depending on time of year, may have variable effects on use of the area by marine species, such as sea turtles and overwintering waterfowl. Installation and operation of water intakes could have a significant impact on juvenile (and adult, in some cases) fish concentrations, through impingement or entrainment.

HABITAT IMPAIRMENT TEST:

A **habitat impairment test** must be applied to any activity that is subject to consistency review under federal and State laws, or under applicable local laws contained in an approved local waterfront revitalization program. If the proposed action is subject to consistency review, then the habitat protection policy applies, whether the proposed action is to occur within or outside the designated area.

The specific **habitat impairment test** is as follows.

In order to protect and preserve a significant habitat, land and water uses or development shall not be undertaken if such actions would:

- destroy the habitat; or,
- significantly impair the viability of a habitat.

Habitat destruction is defined as the loss of fish or wildlife use through direct physical alteration, disturbance, or pollution of a designated area or through the indirect effects of these actions on a designated area. Habitat destruction may be indicated by changes in vegetation, substrate, or hydrology, or increases in runoff, erosion, sedimentation, or pollutants.

Significant impairment is defined as reduction in vital resources (*e.g.*, food, shelter, living space) or change in environmental conditions (*e.g.*, temperature, substrate, salinity) beyond the tolerance range of an organism. Indicators of a significantly impaired habitat focus on ecological alterations and may include but are not limited to reduced carrying capacity, changes in community structure (food chain relationships, species diversity), reduced productivity and/or increased incidence of disease and mortality.

The *tolerance range* of an organism is not defined as the physiological range of conditions beyond which a species will not survive at all, but as the ecological range of conditions that supports the species population or has the potential to support a restored population, where practical. Either the loss of individuals through an increase in emigration or an increase in death rate indicates that the tolerance range of an organism has been exceeded. An abrupt increase in death rate may occur as an environmental factor falls beyond a tolerance limit (a range has both upper and lower limits).

Many environmental factors, however, do not have a sharply defined tolerance limit, but produce increasing emigration or death rates with increasing departure from conditions that are optimal for the species.

The range of parameters which should be considered in applying the habitat impairment test include but are not limited to the following:

1. physical parameters such as living space, circulation, flushing rates, tidal amplitude, turbidity, water temperature, depth (including loss of littoral zone), morphology, substrate type, vegetation, structure, erosion and sedimentation rates;
2. biological parameters such as community structure, food chain relationships, species diversity, predator/prey relationships, population size, mortality rates, reproductive rates, meristic features, behavioral patterns and migratory patterns; and,
3. chemical parameters such as dissolved oxygen, carbon dioxide, acidity, dissolved solids, nutrients, organics, salinity, and pollutants (heavy metals, toxics and hazardous materials).

Although not comprehensive, examples of generic activities and impacts which could destroy or significantly impair the habitat are listed in the Impact Assessment section to assist in applying the habitat impairment test to a proposed activity.

KNOWLEDGEABLE CONTACTS:

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