
COASTAL FISH & WILDLIFE HABITAT ASSESSMENT FORM

Name of Area: **Hempstead Harbor**
County: **Nassau**
Town(s): **North Hempstead; Oyster Bay**
7½' Quadrangle(s): **Sea Cliff, NY**
Originally Designated: **March 15, 1987**
Modified: **October 15, 2005**

Assessment Criteria

Score

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 several major bays on the north shore of Long Island; rare in ecological subregion, but rarity reduced by commercial and industrial development.

Geometric Mean: $\sqrt{(16 \times 9)} = 12$

12

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: Osprey (SC) nesting within the harbor.

16

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: Recreational fishing of county-level significance.

4

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: An important waterfowl wintering area on the north shore of Long Island, significance between county and regional level. Geometric Mean: $\sqrt{(9 \times 4)} = 6$

6

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] = 38

Significance = HI x R = 45.6

NEW YORK STATE
SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT
NARRATIVE

HEMPSTEAD HARBOR

LOCATION AND DESCRIPTION OF HABITAT:

Hempstead Harbor is located on the north shore of Long Island, between Sands Point and the City of Glen Cove. This is approximately a 1,550 acre area located in the Towns of North Hempstead and Oyster Bay, Nassau County (7.5' Quadrangle: Sea Cliff, NY). The fish and wildlife habitat consists of the open water area in the harbor, extending out to Mott Point on the west, and to a breakwater approximately one-half mile north of Mosquito Cove on the east. The habitat is bounded on the south by Old Northern Boulevard in Roslyn. Hempstead Harbor is divided into two distinct sections by a spit of land referred to as Bar Beach. The outer portion of the harbor is generally between 6 and 20 feet deep at mean low water, while the more protected inner harbor is generally less than 6 feet deep at low water, and contains intertidal mudflats and salt marsh. The tidal range throughout the harbor is approximately 7 feet. The harbor is bordered by steep bluffs and headlands, and is surrounded by a mix of residential areas, industrial sites (including a power plant and oil storage facilities), recreational boating facilities, and commercial development. In addition, limited areas of undeveloped land lies adjacent to Hempstead Harbor. Public swimming areas are located along the shoreline on east and west sides of the harbor, as well as on the north side of Bar Beach.

The Hempstead Harbor Protection Committee's 1998 Water Quality Improvement Plan identified nonpoint source pollution as the single largest threat to water quality in the harbor; intermunicipal efforts to improve water quality in Hempstead Harbor are ongoing. Efforts should continue to be made to improve water quality in Hempstead Harbor, which is also affected by effluent discharges from various sources in New York City. Recently, the one remaining wastewater treatment plant within the Harbor has upgraded to tertiary treatment, which has resulted in less plant effluent impacts.

Recent losses of tidal wetlands adjacent to Bar Beach have led to wetland restoration activities at this location, and other tidal wetland restoration projects have been undertaken in Sea Cliff and Glen Cove. Definitive causes for decreases in tidal wetland acreage in Hempstead Harbor have not been identified but research into this problem is ongoing as well as active restoration efforts.

FISH AND WILDLIFE VALUES:

Hempstead Harbor is one of several major embayments on Long Island's north shore. This relatively shallow coastal bay is important to fish and wildlife throughout the year.

Hempstead Harbor is a valuable waterfowl wintering area (November-March), significant on the North Shore. Mid-winter aerial surveys of waterfowl abundance for the ten year period 1987-1996 indicate average concentrations of about 400 birds in the bay each year (1345 in peak year), including approximately 135 greater and/or lesser scaup (420 in peak year) and 95 American black ducks (295 in peak year), along with lesser numbers of Canada goose, brant, common goldeneye,

canvasback, red-breasted merganser, mallard, bufflehead, American wigeon, long-tailed duck, and brant. Pied-billed grebe (T) and common loon (SC) are regular winter visitors to Hempstead Harbor. Waterfowl use of the bay during winter is influenced in part by the extent of ice cover each year. Concentrations of waterfowl are documented in Hempstead Harbor during spring and fall migrations (March-April and October-November, respectively).

In addition to waterfowl, Hempstead Harbor supports a diverse assemblage of other bird species, including: great egret, snowy egret, black-crowned night heron, laughing gull, ring-billed gull, great black-backed gull, herring gull, double-crested cormorant, red-winged blackbird, belted kingfisher, red-throated loon, and horned grebe. Osprey (SC) currently nest on constructed platforms as well as on previously existing nesting sites.

A diversity of rare bird species have been observed visiting Hempstead Harbor at frequencies varying from occasional to regular, including peregrine falcon (E), roseate tern (E), black tern (E), piping plover (E, T-Fed), short-eared owl (E), least tern (T), common tern (T), bald eagle (T), northern harrier (T), sedge wren (T), American bittern (SC), black skimmer (SC), sharp-shinned hawk (SC), cooper's hawk (SC), northern goshawk (SC), common nighthawk (SC), red-headed woodpecker (SC), horned lark (SC), golden-winged warbler (SC), vesper sparrow (SC), grasshopper sparrow (SC), and seaside sparrow (SC).

Hempstead Harbor is a productive area for marine finfish and shellfish. This area provides nursery and feeding habitat (from April 1 - November 30, generally) for striped bass, scup, bluefish, Atlantic silversides, Atlantic menhaden, weakfish, windowpane flounder, winter flounder, summer flounder, and blackfish. Helping to sustain the fish resources in the harbor are populations of baitfish including American sandlance, mummichog, striped killifish, and bay anchovy. The harbor supports a recreational fishery of county-level significance. Jellyfish found in the harbor include comb jellies, moon jellyfish, and lion's mane jellyfish. Shellfish resources in the harbor include blue mussels, soft clams, ribbed mussels, oysters, and razor clams. Crustaceans such as blue crab, shrimp, and lobster (at the mouth of the harbor) are also found in the harbor. Hempstead Harbor also contains hard clam populations, but the area is not certified for commercial shellfishing.

Diamondback terrapin have been observed in the vegetated tidal wetlands of the narrow portion of Hempstead Harbor south of the Route 25A viaduct; further documentation is needed on the use of the area by this species.

IMPACT ASSESSMENT:

Any activity that would substantially degrade the water quality in Hempstead Harbor would adversely affect the biological productivity of this area. Degradation of water quality in the bay, or to its water sources, from chemical contamination (including food chain effect), oil spills, excessive turbidity, and waste disposal (including vessel wastes) would adversely affect all fish and wildlife. Efforts should be made to improve water quality in the bay, including the control and reduction 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. The Hempstead Harbor Protection Committee's 1998 Water Quality Improvement Plan identified nonpoint source pollution as the single largest threat to water quality in the harbor; intermunicipal efforts to improve water quality in Hempstead Harbor are ongoing. Efforts should continue be made to improve water quality

in Hempstead Harbor, which is also affected by effluent discharges from various sources in New York City. Recently, the one remaining wastewater treatment plant within the Harbor has upgraded to tertiary treatment, which has resulted in less plant effluent impacts.

Alteration of tidal patterns in Hempstead Harbor could have adverse effects on the biotic communities present. Dredging to maintain existing boat channels should be scheduled between September 15 and December 15 to minimize adverse effects on aquatic organisms, and to allow for dredged material placement 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.

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 Hempstead Harbor. 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. 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 Hempstead Harbor can 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 vegetated wetlands.

Thermal discharges, depending on time of year, may have variable effects on use of the area by marine species and wintering waterfowl. Installation and operation of water intakes could have a significant adverse 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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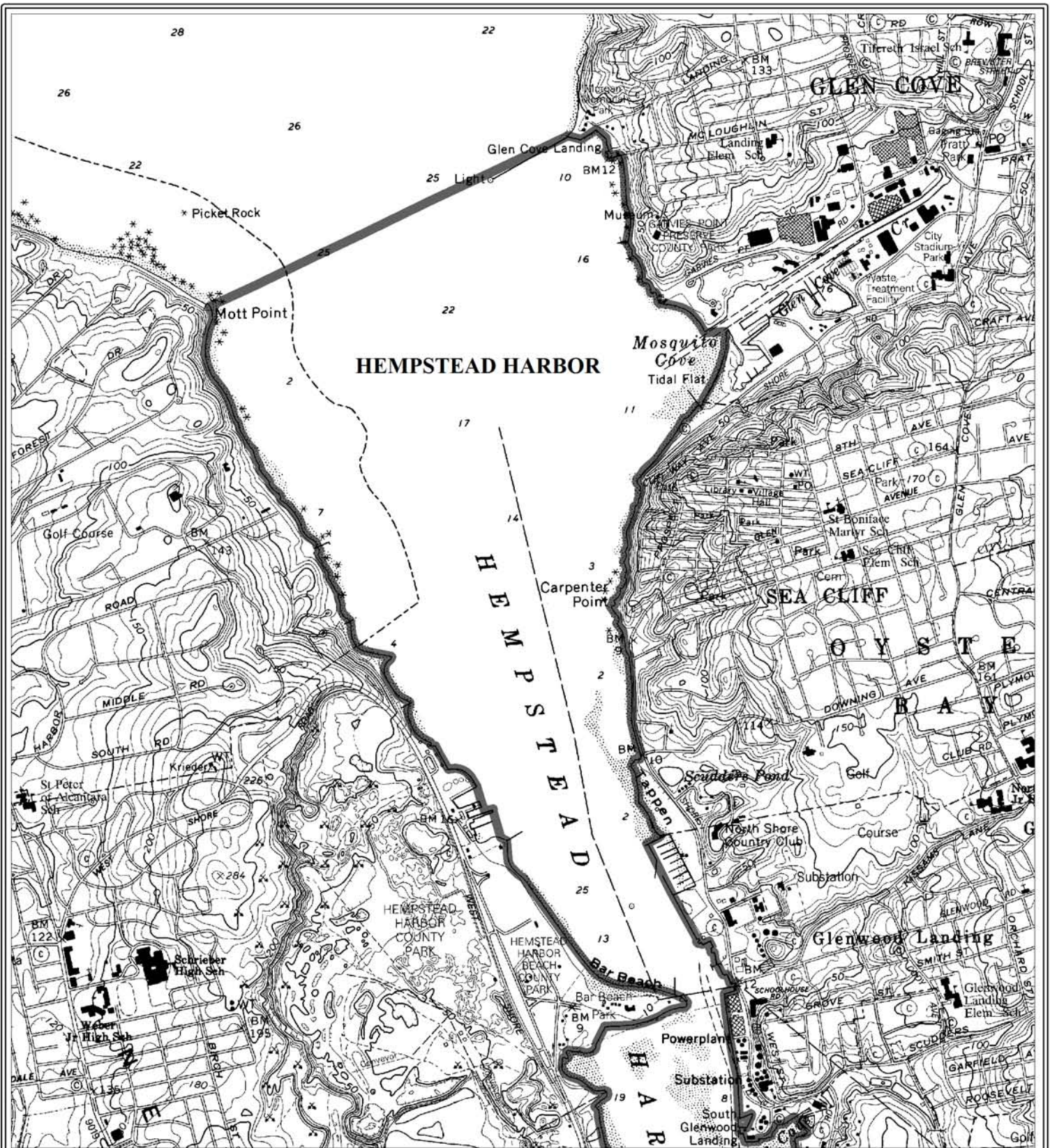
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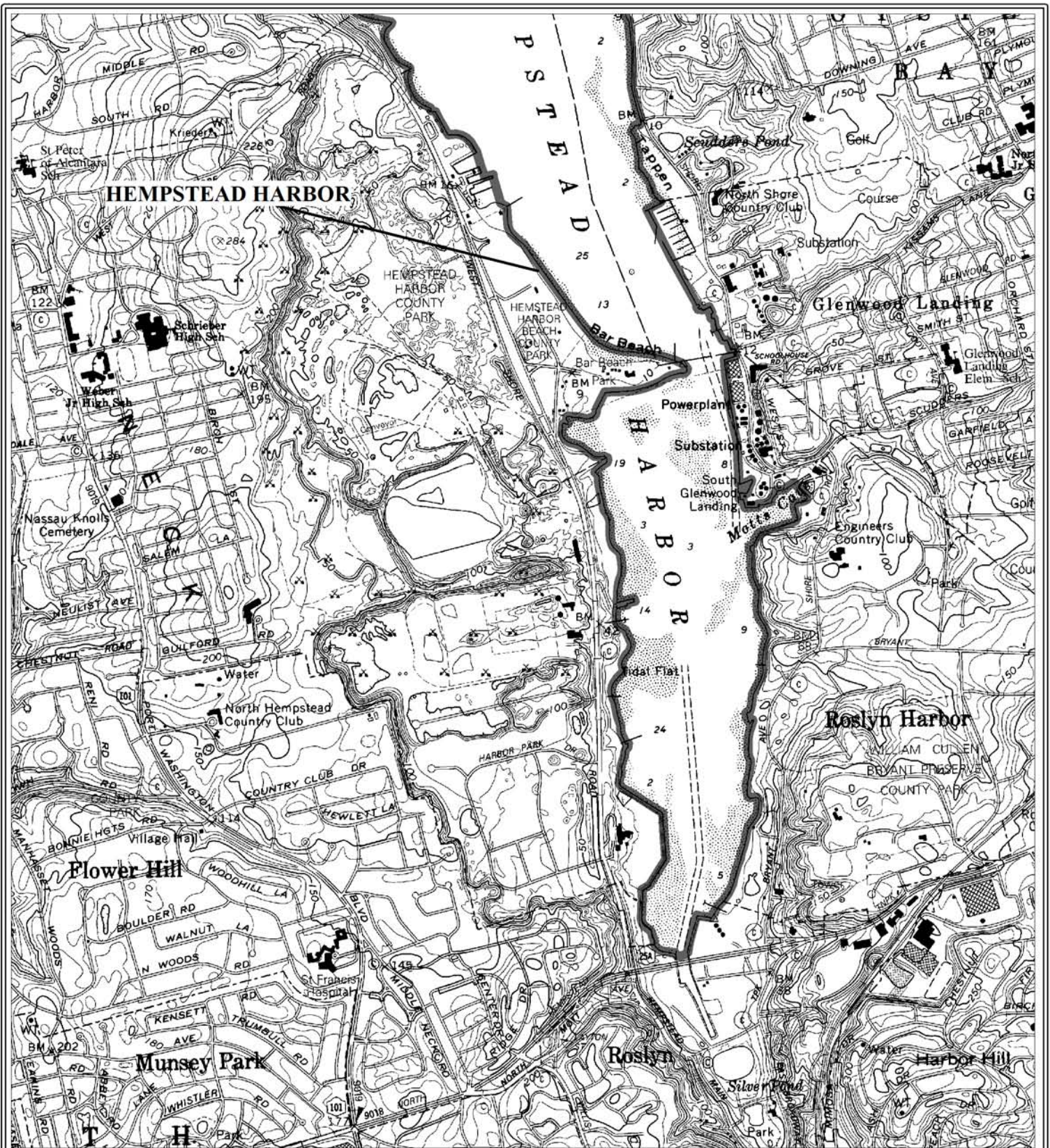
Significant Coastal Fish and Wildlife Habitats



New York State
Department of State
Division of
Coastal Resources

Hempstead Harbor (In Part)
Part 1 of 2





Significant Coastal Fish and Wildlife Habitats



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