Attachment B:

COASTAL FISH & WILDLIFE HABITAT ASSESSMENT FORM

Name of Area:	**West Hempstead Bay**
Designated:	**March 15, 1987**
Date Revised:	**December 15, 2008**
County:	**Nassau**
Town(s):	**Hempstead**
7½' Quadrangle(s):	**Lawrence, NY; Lynbrook, NY**

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 the largest, undeveloped, coastal wetlands ecosystems in New York State. **64**

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: Common tern (T) and osprey (SC) nesting. 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 most important waterfowl hunting areas on Long Island. Recreational fishing of regional significance within New York State. **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: Wintering waterfowl concentrations (brant, especially) of regional significance. **25**

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) = 131 **Significance: (HI x R) = 157.2**

NEW YORK STATE
SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT
NARRATIVE

WEST HEMPSTEAD BAY

LOCATION AND DESCRIPTION OF HABITAT:

West Hempstead Bay is located along the south shore of Long Island, between the Villages of Lawrence and Island Park, in the Town of Hempstead, Nassau County (7.5' Quadrangles: Lawrence, NY; and Lynbrook, NY). This approximately 400 acre area is generally defined by the mean high water elevation on the west, north, and east sides, and by the center line of the Reynolds Channel to the south. The fish and wildlife habitat is the entire bay, which includes extensive areas of undeveloped salt marsh, tidal flats, dredged material islands, and open water. West Hempstead Bay is owned by the Town of Hempstead and is managed as a Wetland Conservation Area. The bay is surrounded by residential development, small craft harbor facilities, and commercial and industrial facilities, including oil terminals.

Water depths in the bay vary from less than 6 feet (below mean low water) in the natural creeks and bays, to over 30 feet in portions of some dredged navigation channels. Tidal range in the bay averages approximately 3.96 feet. Depending on the location and time of year, salinity in the bay ranges from 25 to 30 parts per thousand and the temperature varies from 28 to 85 degrees. The water column in the bay is well mixed with relatively high levels of dissolved oxygen.

West Hempstead Bay is characterized by an extensive system of sheltered shallow bays and salt marsh islands connected by a network of channels and tidal creeks. Characteristic communities of this estuarine intertidal subsystem include high and low salt marshes and salt pannes. Essential structural components of these systems include sparse to highly vegetated herbaceous layers dominated by smooth cordgrass (*Spartina alterniflora*), common glasswort (*Salicornia europea*), salt hay grass (*Spartina patens*), spike grass (*Distichlis spicata*), and perennial salt marsh aster (*Aster tenuifolius*). The mainland salt marshes and tidal creeks in this section have been virtually eliminated by bulkheading and filling, thus there are no sizable tributaries entering the bay.

FISH AND WILDLIFE VALUES:

West Hempstead Bay comprises approximately one-fourth of the vast Hempstead - South Oyster Bay wetland complex. The bay represents one of the largest undeveloped coastal wetland ecosystems in New York State. The vast complex of marsh islands is largely dominated by smooth cordgrass and salt hay grass with very limited intrusions by the non-native common reed (*Phragmites australis)* where disturbances have occurred. This highly diverse area is important to fish and wildlife throughout the year. Common terns (T) nest in many locations throughout the bay, including Big Hassock, the Green Sedge Island Group, Pearsall's Hassock, and Lawrence Marsh. For the 13 year period between 1993 and 2005, an estimated annual average of 28 pairs of common terns (T) nested in West Hempstead Bay (65 in peak year). Common terns (T) nest in large colonies located in sand, gravel, shells, and seaweed above the high tide mark. Productivity of the surrounding waters is of vital importance to common terns (T)

because they feed on small fish, shrimp, and aquatic insects. An observed average of 5 breeding pairs (8 in peak year) of osprey (SC) were observed in West Hempstead Bay from 1998 to 2004.

The Hempstead Bays and South Oyster Bay, along with adjacent areas of western Great South Bay, contain one of the more important sites in the New York Bight study area and the most important areas on Long Island for nesting by colonial wading birds (heron, egrets, and ibises), with over 900 pairs nesting in 1995. Species of wading birds nesting in this area include snowy egret, glossy ibis, black-crowned night-heron, great egret, little blue heron, green-backed heron, tri-colored heron, yellow-crowned night-heron, and cattle egret. Twenty-eight breeding pairs and 10 breeding pairs of black-crowned night heron have been observed in West Hempstead Bay in 1993 and 1998 (respectively). The Hempstead Bay's rookeries contain most of the known Long Island nesting sites for yellow-crowned night-herons. These birds use a network of islands in the bays, with shifts in use between islands from year to year. Nests are usually placed in woody vegetation which has been established and enhanced by management activities by the Town of Hempstead on abandoned dredged material deposits. Other species nesting in West Hempstead Bay include Canada goose, American black duck, mallard, herring gull, great black-backed gull, clapper rail, willet, Forster's tern, fish crow, marsh wren, boat-tailed grackle, sharp-tailed sparrow, American oystercatcher, gull-billed tern, and seaside sparrow (SC). The salt marshes, intertidal flats, and shallows in this area are used extensively as feeding areas for birds nesting here and for many other species during migrations (shorebirds in particular).

West Hempstead Bay is one of the most important waterfowl wintering areas (November - March) on Long Island. Mid-winter aerial surveys of waterfowl abundance for the 13 year period from 1986 to 1998 (excluding 1997) indicate average concentrations of 11,889 birds in the bay each year. Approximately 9,663 of the 11,889 birds were brant (19,169 in peak year), with lesser numbers of mallard, American black duck, American widgeon, northern shoveler, gadwall, green-winged teal, blue-winged teal, northern pintail, merganser (red-breasted, common, and/or hooded), canvasback, scaup (lesser and/or greater), common goldeneye, bufflehead, Canada goose, snow goose, American coot, common eider, and ruddy duck. West Hempstead Bay supports nearly half of the wintering concentrations of brant in New York State, and approximately 7% of the entire Atlantic flyway's brant population. Waterfowl use of the bay during winter is influenced in part by the extent of ice cover each year. Generally, brant and geese feed in open water areas through midwinter, while later in spring (prior to migration), the birds feed extensively in the salt marshes. Concentrations of waterfowl also occur in the area during spring and fall migrations (March - April and October - November, respectively). Annual November Atlantic Brant Productivity Surveys from 1999 through 2004 indicate average concentrations of 6,274 brant in West Hempstead Bay. All of West Hempstead Bay is open to the public for waterfowl hunting, and the area supports regionally significant hunting pressure.

In addition to having significant bird concentrations, West Hempstead Bay is a productive area for marine finfish, shellfish, and other wildlife. The bay serves as critical pre-migratory habitat for yearling striped bass and bluefish. It is also an important nursery and feeding area (April - November, generally) for winter flounder and Atlantic menhaden, as well as forage fish species including Atlantic silverside, bay anchovy, and killifish. Harvest records from West Hempstead Bay include winter and summer flounder, weakfish, grey snapper, and northern kingfish. Mollusks and crustaceans in the bay include soft clam, hard clam, scallop, ribbed mussel, and blue crab, although none of the bay waters are certified for shellfishing. Horseshoe crab are also found within the West Hempstead Bay significant habitat. As a result of the abundant fisheries resources in the bay, and its proximity to the New York metropolitan area, West Hempstead Bay receives heavy recreational fishing pressure, of regional significance. Diamond back terrapin nest among the salt marsh islands in the bay.

IMPACT ASSESSMENT:

Any activity that would degrade water quality, increase turbidity, increase sedimentation, or alter flows, temperature, or water depths would adversely affect the biological productivity of this area. All species of fish and wildlife are affected by water pollution, such as chemical contamination (including food chain effects resulting from bioaccumulation), oil spills, excessive turbidity or sediment loading, non-point source run-off, waste disposal (including vessel wastes), and stormwater runoff. Efforts should be made to improve water quality in the bay, including the reduction or elimination of discharges from vessels and upland sources, effective oil and toxic chemical spill prevention and control programs, upgrading of wastewater treatment plants, enactment of pet waste ordinances to reduce coliform contributions to the bay, and the implementation of erosion control and stormwater pollution prevention best management practices. Vegetated upland buffer zones (e.g. wetlands, dunes, and forested areas) should be protected or established to reduce non-point source pollution and sedimentation from upland sources.

Alteration of tidal patterns in West Bay, by modification of inlet configurations or other means (e.g., sediment removal by dredging, channelization, bulkheading), would have negative impacts on the biotic communities present. Elimination of salt marsh and intertidal areas, through loss of intertidal connection, ditching, excavation, or filling, would result in a direct loss of a valuable habitat. No new navigation channels should be excavated within the area. Dredging to maintain existing boat channels in the bay should be scheduled in between September 15 and December 15 to minimize adverse effects on aquatic organisms. Unregulated dredged material placement in this area would be detrimental to the habitat, but such activities may be designed to maintain or improve the habitat for certain species of wildlife.

Construction of shoreline structures, such as docks, piers, bulkheads, or revetments, in areas not previously disturbed by development (e.g., natural salt marsh, tidal flats, or shallows), would result in the loss of productive areas which support the fish and wildlife resources of West Hempstead Bay. Restoration of previously connected portions of the habitat, including the removal of structures (e.g. bulkheads, groins, jetties) which disrupt natural sedimentation and deposition patterns and physically alter the habitat may be beneficial. Maintenance of existing erosion control structures which interfere with natural coastal process should be carefully evaluated for need and where possible, non-structural solutions should be utilized.

Unrestricted use of motorized vessels including personal watercraft in shallow waters can have adverse effects on the benthic community and on fish and wildlife populations. Use of motorized vessels should be controlled (e.g., no wake zone, 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 and overwintering waterfowl. Installation and operation of water intakes could have significant impact on juvenile (and adult, in some cases) fish concentrations, through impairment or entrainment. Activities that would enhance migratory, spawning, or nursery fish habitat, particularly where an area is essential to a species' life cycle or helps to restore an historic species population would be beneficial. Where appropriate, hydrological modifications (e.g. dams, dikes, channelization, bulkheading, sedimentation, etc.) should be mitigated or removed, including the rejoining of formerly connected tributaries, and the removal of obstructions or improvements to fish passage.

Nesting birds inhabiting the islands of West Bay are highly vulnerable to disturbance by humans from April 15 through August 15. Significant pedestrian traffic or recreational use (e.g., boat and personal

watercraft landing, off-road vehicle use, picnicking) of those islands which contain concentrations of nesting birds could easily eliminate the use of this site as a breeding area and should be minimized during this period. Predation of chicks and destruction of eggs or nests by unleashed pets (e.g., dogs, cats) and natural predators may also occur, and predator control should be implemented where feasible. Fencing and/or annual posting of the bird nesting area should be provided to help protect the nesting bird species.

Activities to protect or restore wetland habitat in West Hempstead Bay, consistent with best management practices, (including the restoration of historic tidal regime, planting of native vegetation, control of invasive species, etc.) may enhance habitat values for fish and wildlife species.

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:

Habitat Unit
N.Y.S. Department of State
Division of Coastal Resources
99 Washington Avenue
Albany, NY 12231
Phone: (518) 474-6000

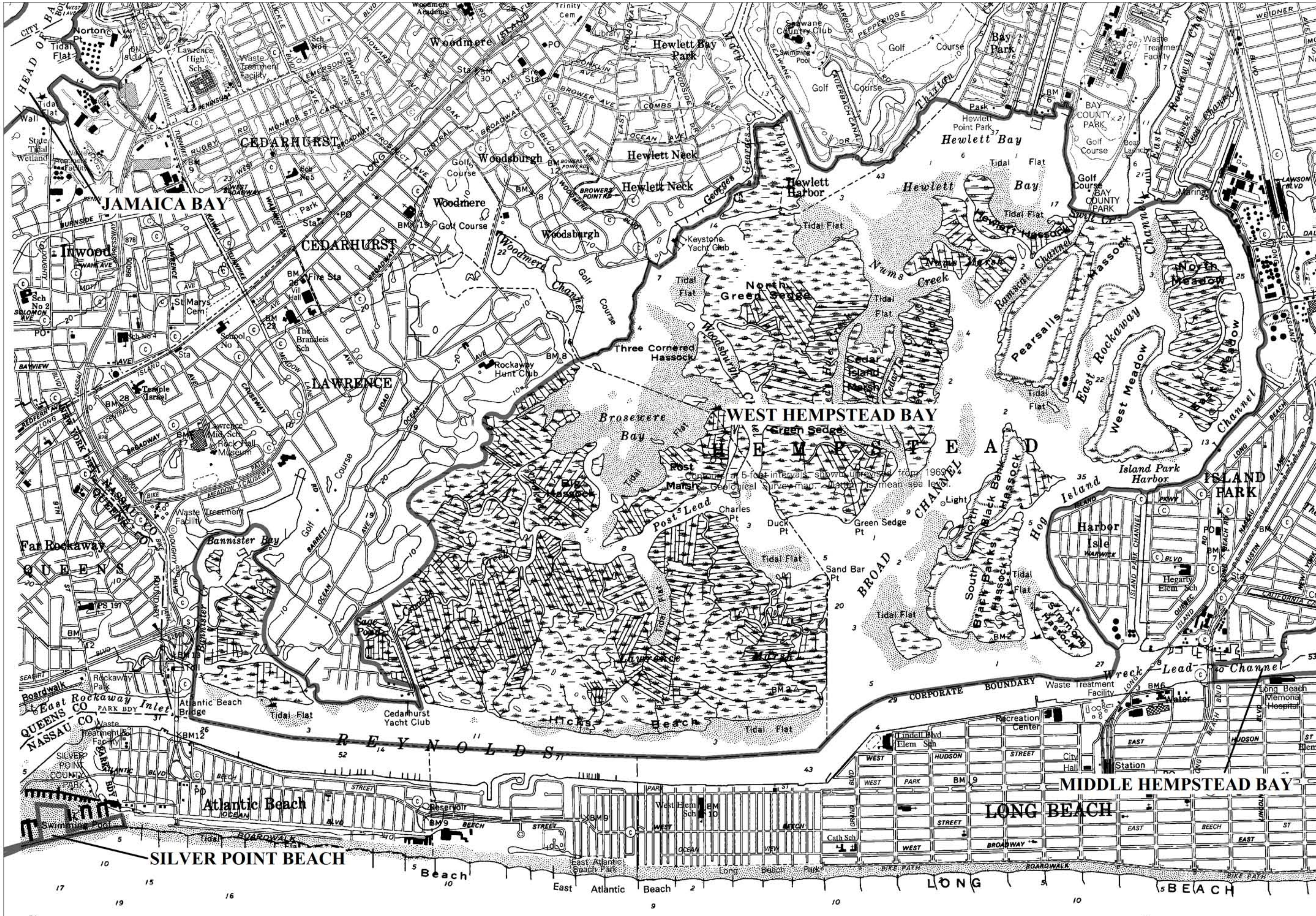
Wildlife Manager
NYSDEC - Region 1
State University of New York, Building 40
Stony Brook, NY 11790
Phone: (631) 444-0354

NYSDEC - Region 1
State University of New York, Building 40
Stony Brook, NY 11790
Phone: (631) 444-0204

Bureau of Marine Resources
NYSDEC
205 N. Belle Meade Road, Suite # 1
East Setauket, NY 11733
Phone: (631) 444-0430

Finfish and Crustaceans
NYSDEC
205 N. Belle Meade Rd, Suite # 1
East Setauket, NY 11733
Phone: (631) 444-0430

NY Natural Heritage Program
Wildlife Resources Center
700 Troy-Schenectady Road
Latham, NY 12110
Phone: (518) 783-3932



Significant Coastal Fish and Wildlife Habitats

West Hempstead Bay
Middle Hempstead Bay (In Part)
Jamaica Bay (In Part)
Silver Point Beach (In Part)

New York State
Department of State

Division of
Coastal Resources