

**Attachment B:**

COASTAL FISH & WILDLIFE HABITAT ASSESSMENT FORM

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| Name of Area:      | <b>Middle Hempstead Bay</b>                          |
| Designated:        | <b>March 15, 1987</b>                                |
| Date Revised:      | <b>December 15, 2008</b>                             |
| County:            | <b>Nassau</b>  |
| Town(s):           | <b>Hempstead</b>                                     |
| 7½' Quadrangle(s): | <b>Freeport, Jones Inlet, Lynbrook, Lawrence, NY</b> |

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**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 wetland 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: Peregrine falcon (E), common tern (T), osprey (SC) nesting. Additive division:  $36 + 25/2 + 16/4 = 52.5$ . **52.5**

**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; regionally important for recreational fishing; environmental education activities of county-level significance. Additive division:  $9 + 9/2 + 4/4 = 14.5$  **14.5**

**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 statewide significance. One of only a few locations with nesting gull-billed tern on Long Island. Additive division:  $16 + 9/2 = 20.5$  **20.5**

**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**

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**Habitat Index: ( ER + SV + HU + PL) = 151.5** **Significance: (HI x R) = 181.8**

NEW YORK STATE  
SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT  
NARRATIVE

**MIDDLE HEMPSTEAD BAY**

LOCATION AND DESCRIPTION OF HABITAT:

Middle Hempstead Bay ("Middle Bay") is located along the south shore of Long Island, between the Village of Island Park and the Meadowbrook State Parkway, in the Town of Hempstead, Nassau County (7.5' Quadrangles: Freeport, N.Y.; Jones Inlet, N.Y.; Lawrence, N.Y.; and Lynbrook, N.Y.). This approximately 5,000 acre area is generally defined by the mean high water elevation on all sides, except just west of Jones Inlet, where it extends to the center line of the Reynolds and Sloop Channels. 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. Most of Middle Hempstead Bay is owned by the Town of Hempstead and is managed as a wetland conservation area. The bay is surrounded by residential development and small craft harbor facilities, except on the east side, which is bordered by undeveloped right-of-way for the Meadowbrook Parkway.

Middle 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. 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. 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 europaea*), salt hay grass (*Spartina patens*), spike grass (*Distichlis spicata*), and perennial salt marsh aster (*Aster tenuifolius*). Water depths in the bay vary from less than 6 feet (below mean low water) in the natural tidal creeks and bays, to over 30 feet in portions of some dredged navigation channels. Tide range in the bay averages approximately 3.03 to 3.08 feet depending on location. Salinity in the bay ranges from 25 to 30 parts per thousand, temperature ranges from 28°F to 85°F, with both factors depending on location and time of year. The bay is shallow and the water column is well-mixed, with relatively high dissolved oxygen levels.

FISH AND WILDLIFE VALUES:

Middle 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 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 the Cinder Island Group, Long Meadow Island, Garrett Marsh, East Channel Islands, Parsonage Island, and Gull Island. For the 13 year period from 1993 to 2005, an estimated annual average of 486 pairs (634 in peak year) of common terns (T) were reported in Middle Hempstead Bay. Gull-billed tern nested in Middle Hempstead Bay during this same time period with an estimated average of 4 breeding pairs per year (10 in peak year). This is one of only two or three sites on Long Island with nesting gull-billed tern, all of which are in the Town of

Hempstead, Nassau County. Forster's tern has been moving northward along the Atlantic Coast in recent years, resulting in an increasing population on Long Island. The population of Forster's tern in Middle Hempstead Bay is among the largest on Long Island with an average of 52 nesting pairs (153 in peak year) annually from 1996 through 2005. Terns typically nest in simple scrapes built in sand, gravel, shells, and seaweed above the high tide mark. Tern breeding colonies may contain several hundred to several thousand birds, including roseate (E), least (T), common (T), and gull-billed terns, along with black skimmer (SC). Productivity of the surrounding waters is of vital importance to tern species because they feed on small fish, shrimp, and aquatic insects.

Middle Hempstead Bay is inhabited by a variety of nesting colonial wading birds, including snowy egret, great egret, black-crowned night heron, glossy ibis, little blue heron, and green-backed heron. This area is also one of the few locations on Long Island where yellow-crowned night heron and tri-colored heron have been found nesting. Rookeries have been located on Pine Marsh, on Smith Meadow, south of Little Swift Creek, on Meadow Island, along the Loop Parkway (1986), Alder Island, Ingraham Hassock, and on High Meadow Island. These birds use a network of islands in the bays, with shifts in island use over the years. Nests are usually placed in woody vegetation which has become established on abandoned dredged material deposits. Black-crowned night herons, for the years 1993, 1995, 1998, 2001, and 2004 averaged 117 nesting pairs annually (184 in peak year), but unfortunately the interim years were not surveyed. For these same years, snowy egret averaged 86 nesting pairs per year. Glossy ibis were not surveyed in 1993, but for 1995, 1998, and 2001, and 2004 they averaged 173 breeding pairs per year. Other species nesting in Middle Hempstead Bay include Canada goose, American black duck, mallard, herring gull, great black-backed gull, black skimmer (SC), American oystercatcher, clapper rail, willet, fish crow, marsh wren, sharp-tailed sparrow, and seaside sparrow (SC).

In addition to nesting colonial water birds, Middle Hempstead Bay is also home to nesting raptors. Middle Hempstead Bay supported at least one pair of breeding peregrine falcons (E) on Parsonage Island in 2004. Peregrine falcons (E) generally return to the same nesting location annually and mate for life. From 1998 to 2004, an average of 7 breeding pairs (10 in peak year) of osprey (SC) were observed in Middle Hempstead Bay.

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 migration (shorebirds in particular). Middle Hempstead Bay is one of the most important waterfowl wintering areas (November - March) on Long Island. Mid-winter aerial surveys of waterfowl abundance in Middle Hempstead Bay for the 13 year period from 1986-1998 (excluding 1997) estimate average concentrations of over 4,600 birds in the bay each year (12,790 in peak year), including approximately 3,364 brant (11,785 in peak year), 530 (greater and/or lesser) scaup (4,655 in peak year), and 364 American black ducks (1,010 in peak year), along with lesser numbers of mallard, (red-breasted, common, and/or hooded) merganser, common goldeneye, bufflehead, scoter (not identified to species), and Canada goose. Annual November Atlantic Brant Productivity Surveys conducted from 1999 through 2004 indicate average annual concentrations of approximately 3,178 brant in Middle Hempstead Bay. Middle Bay supports one of the largest wintering concentrations of brant in New York State. 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. Scaup and mergansers concentrate in the deeper waters of the numerous channels. Concentrations of waterfowl also occur in the area during spring and fall migrations (March - April and October - November, respectively). All of Middle 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, Middle Hempstead Bay is a productive area for marine finfish, shellfish, and other wildlife. Atlantic menhaden, weakfish, and winter flounder spawn in the sandy shallows, while American sandlance, killifish, pipefish, sticklebacks, and Atlantic silversides spawn in edge habitat provided by the mosaic of salt marsh islands. Young bluefish, striped bass, summer flounder, and tautog are dependent upon the bays as nurseries. Adult bluefish and striped bass congregate in the deeper waters of Jones Inlet, as does the American sandlance, which is the major food item of the roseate tern (E). Harvest records from the Hempstead Bays include winter and summer flounder, weakfish, grey snapper, and northern kingfish. Mollusks and crustaceans in the bay include soft clam, hard clam, bay scallop, ribbed mussel, and blue crab. Horseshoe crab is found within the Middle Hempstead Bay significant habitat as well. More than half of Middle Hempstead Bay is either conditionally certified, or certified open for shellfishing, depending on the area. Landings data reported from all of the Hempstead Bay - South Oyster Bay Complex indicate an average annual commercial harvest of 8,469 bushels of hard clams, and 1,547 bushels of soft clams from 1993 to 2003. As a result of the abundant fisheries resources in the bay, and its proximity to the New York metropolitan area, Middle Bay receives heavy recreational fishing pressure, of regional significance. Diamondback terrapin nest among the salt marsh islands in the bay, and at the Oceanside Marine Nature Study Area. Several facilities for environmental education are located around Middle Bay, providing nature study opportunities for many Nassau County residents.

#### 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 may be 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 runoff, 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 Middle 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. 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 Middle Hempstead Bay. 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. 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. Construction of new and 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 the use of the area by marine species, such as sea turtles 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 Middle 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 the marsh islands 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 Middle 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:

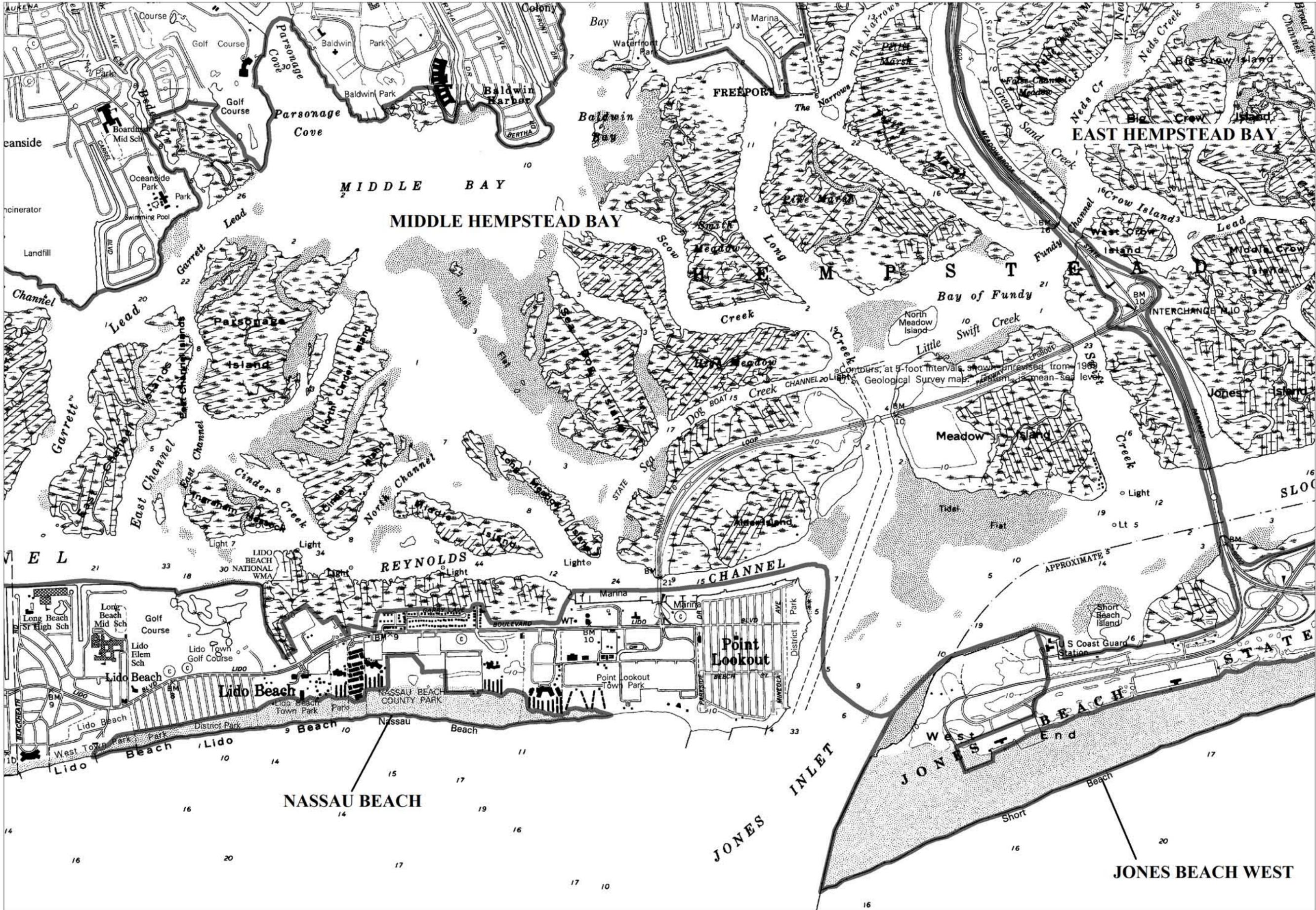
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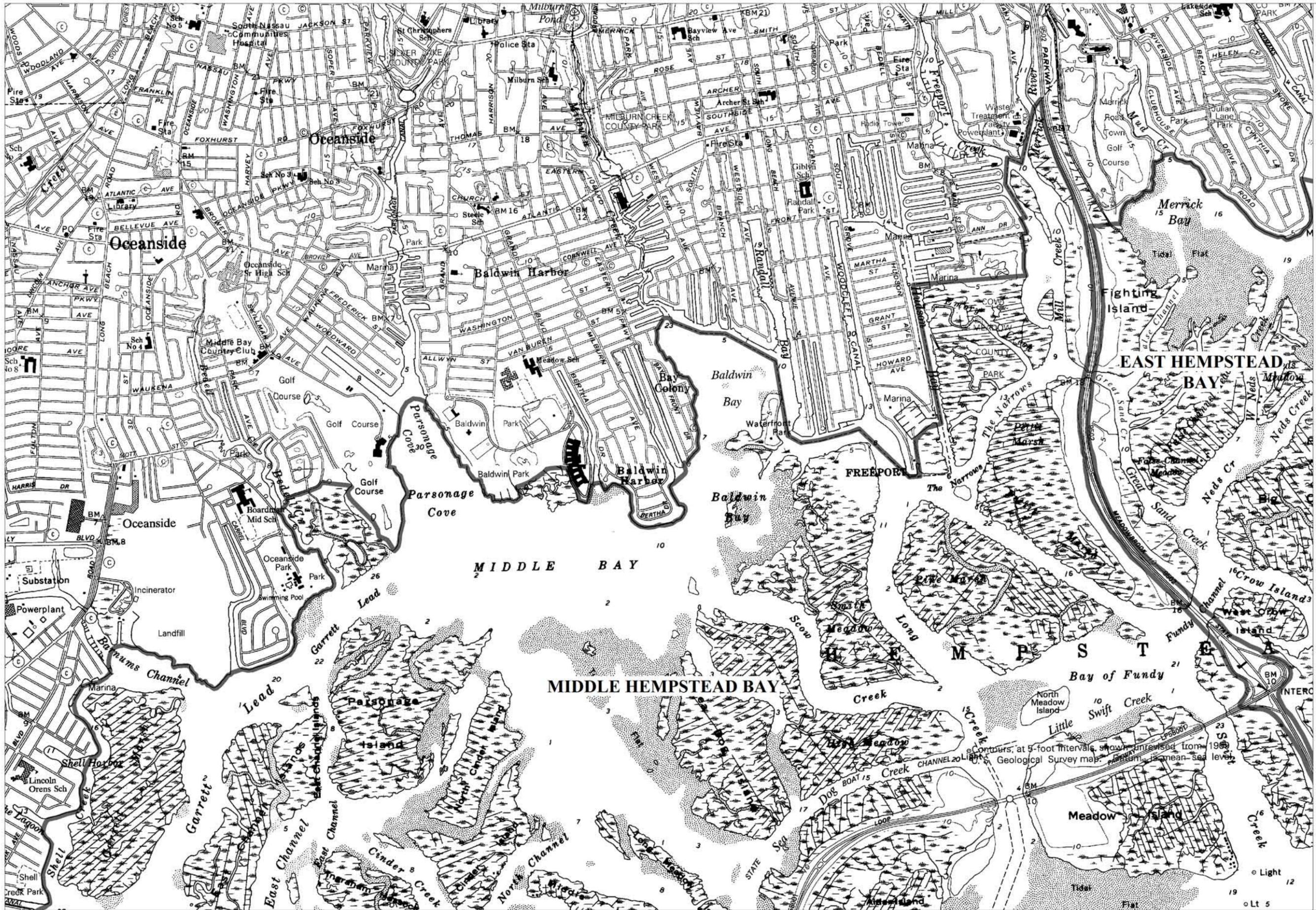
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**Significant Coastal Fish and Wildlife Habitats**

- Middle Hempstead Bay (In Part)
- part 1 of 3
- Nassau Beach
- Jones Beach West (In Part)
- East Hempstead Bay (In Part)

Contours, at 9-foot intervals, shown unrevised from 1968 Geological Survey maps. Datum is mean sea level.



Significant Coastal Fish and Wildlife Habitats

Middle Hempstead Bay (In part)

part 2 of 3

East Hempstead Bay (In Part)





Significant Coastal Fish and Wildlife Habitats

Middle Hempstead Bay (In Part)  
 part 3 of 3  
 Nassau Beach (In Part)  
 West Hempstead Bay (In Part)