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COASTAL FISH & WILDLIFE HABITAT ASSESSMENT FORM

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Name of Area: **Stony Brook Harbor and West Meadow**  
County: **Suffolk**  
Town(s): **Brookhaven, Smithtown**  
7½' Quadrangle(s): **Saint James, NY**  
Originally Designated: **March 15, 1987**  
Modified: **October 15, 2005**

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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 coastal wetland ecosystems on the north shore of Long Island, unusual in the region. 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: Piping plover (E, T-Fed), least tern (T), common tern (T), osprey (SC), and horned lark (SC) nesting. Additive Division:  $36 + 25/2 + 25/4 + 16/8 + 16/16 = 57.75$  57.75

**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: Area provides significant opportunities for birdwatching, fishing, nature study, *etc.*, of county wide 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: Concentrations of nesting least terns (T) and common terns (T) are among the largest on Long Island, of regional significance. Populations of herons and egrets of regional significance. 9

**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] = 141.75**

**Significance = HI x R = 170.1**

NEW YORK STATE  
SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT  
NARRATIVE

**STONY BROOK HARBOR AND WEST MEADOW**

LOCATION AND DESCRIPTION OF HABITAT:

Stony Brook Harbor and West Meadow are located on the north shore of Long Island, between the Villages of Nissequogue, Head of the Harbor, and the hamlets of Stony Brook and Setauket, in the Towns of Smithtown and Brookhaven, Suffolk County (7.5' Quadrangle: Saint James, NY). This approximately 1,310 acre area includes all of the wetland area behind Long Beach and West Meadow Beach, which contain extensive areas of undeveloped salt marsh, intertidal flats, dredged material islands, and open water. Also included is the eastern end of the Long Beach barrier spit. Water depths in the harbor are generally less than 6 feet below mean low water, except in dredged navigation channels. The harbor is bordered on the west, south, and east by residential development and undeveloped woodlands. Small craft harbor facilities predominate on the north shore of Stony Brook Harbor, including the Town of Smithtown's Long Beach Marina and Boat Launch, and in the hamlet of Stony Brook. Losses of tidal wetlands have recently been documented on Youngs Island; investigations into the cause or causes of these losses is ongoing.

The globally rare plant Roland's sea-blite (*Sueda rolandii*) has been documented in swale and salt marsh panne habitat in the central part of the Long Beach barrier spit.

FISH AND WILDLIFE VALUES:

Stony Brook Harbor and West Meadow comprise one of the largest and most diverse coastal wetland ecosystems on the north shore of Long Island, of regional significance, and is important to many fish and wildlife species throughout the year.

Piping plover (E, T-Fed), least tern (T), and common tern (T) nest in several locations within Stony Brook Harbor, including the eastern end of the Long Beach barrier spit, Porpoise Channel Island (Youngs Island), and areas filled with dredged material south of the Long Beach Marina and boat launch. Least tern (T) and piping plover (E, T-Fed) nested in small numbers on West Meadow Beach in the 1990's but recent use of the beach for nesting has not been documented. An annual average of 62 breeding pairs (139 pairs in peak year) of least terns (T), 554 pairs (766 pairs in peak year) of common terns (T) and 1 pair (2 in peak year) of piping plovers (E, T-Fed) were observed in the area during the 1993 to 2002 survey period. One pair of roseate tern (E) was documented nesting on Youngs Island in 2002. In most years, the populations of least terns (T) and common terns (T) nesting at Stony Brook Harbor are among the largest on Long Island, of regional significance. Recent declines in piping plover (E, T-Fed) and tern nesting at the eastern end of the Long Beach barrier spit may be attributable to an increasing number of gulls, which compete with tern and plover populations for finite resources. Population decreases may also be attributable to

vegetative succession, which has increased the vegetation on Youngs Island and other previously filled areas of Stony Brook Harbor, resulting in less desirable habitat. A 2002 DEC survey reported 689 pairs of locally nesting herring gulls (at Youngs Island). Stony Brook Harbor and West Meadow are also inhabited by a variety of nesting colonial waterbird species, including snowy egret, great egret, black-crowned night heron, and yellow-crowned night heron. The primary rookery is located on the eastern end of Long Beach, although recent surveys have documented nesting in the woods adjacent to the yacht club. In the late 1970's and early 1980's, this area contained some of the largest nesting concentrations of snowy egret and black-crowned night heron on Long Island, with estimates in peak years of 128 and 160 pairs, respectively. Recent information indicates that these colonial nesters occur in fewer numbers. Other species nesting in the habitat area include osprey (SC), horned lark (SC), black-backed gull, fish crow, red-winged blackbird, and double-crested cormorants. Over 40 pairs of double-crested cormorants nested at Stony Brook Mill Pond in 2003. Because of the great diversity of bird species nesting on or utilizing Youngs island, the island has been is designated as a Bird Conservation Area.

Stony Brook Harbor and West Meadow is one of the most important waterfowl wintering areas (November - March) in northern Suffolk County. Mid-winter aerial surveys of waterfowl abundance for the 11 year period from 1986-1996 indicate average annual concentrations of over 333 birds (784 in peak year), including approximately 111 American black duck (418 in peak year), along with lesser numbers of scaup (lesser and/or greater), mallard, Canada goose, long-tailed duck, bufflehead, common goldeneye, and red-breasted merganser. Waterfowl use during winter is influenced in part by the extent of ice cover each year. Concentrations of waterfowl are also documented in Stony Brook Harbor and West Meadow during spring and fall migrations (March - April and October - November, respectively).

In addition to having significant bird concentrations, Stony Brook Harbor and West Meadow are productive areas for marine finfish, shellfish, and other wildlife. Stony Brook Harbor supports a small commercial shellfishing industry (hard and soft clams) of local importance. The bay and creeks serve as nursery and foraging areas (from April 1 - November 30, generally) for winter flounder, bluefish, blackfish, Atlantic silversides, and striped killifish. Shellfish inhabiting these waters include hard clams, soft clams, American oysters, ribbed mussels, and blue mussels with nearly 87% of the waters certified for shellfishing (West Meadow Creek is uncertified for shellfishing, as is the southernmost portion of the harbor). Stony Brook Harbor and West Meadow are readily accessible for a variety of fish and wildlife related recreational uses and are popular among local residents for fishing, birdwatching, and nature study.

#### IMPACT ASSESSMENT:

Any activity that would substantially degrade the water quality in Stony Brook Harbor and West Meadow 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). It is essential that high water quality be maintained in this area to protect the shellfishery in the harbor. 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.

Alteration of tidal patterns in Stony Brook Harbor and West Meadow could have negative 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 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.

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 Stony Brook Harbor and West Meadow. 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 the area 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 and wintering waterfowl. Installation and operation of water intakes could have a significant impact on juvenile (and, in some cases, adult) fish concentrations, through impingement or entrainment.

Nesting shorebirds inhabiting Stony Brook Harbor and West Meadow are highly vulnerable to disturbance by humans from March 15 through August 15. Significant pedestrian traffic or recreational use (*e.g.*, boat and personal watercraft landing, off-road vehicle use, picnicking) of the eastern end of Long Beach spit and filled areas in the harbor could easily eliminate the use of this significant habitat area 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 continued annual posting of shorebird nesting areas should be provided to help protect these 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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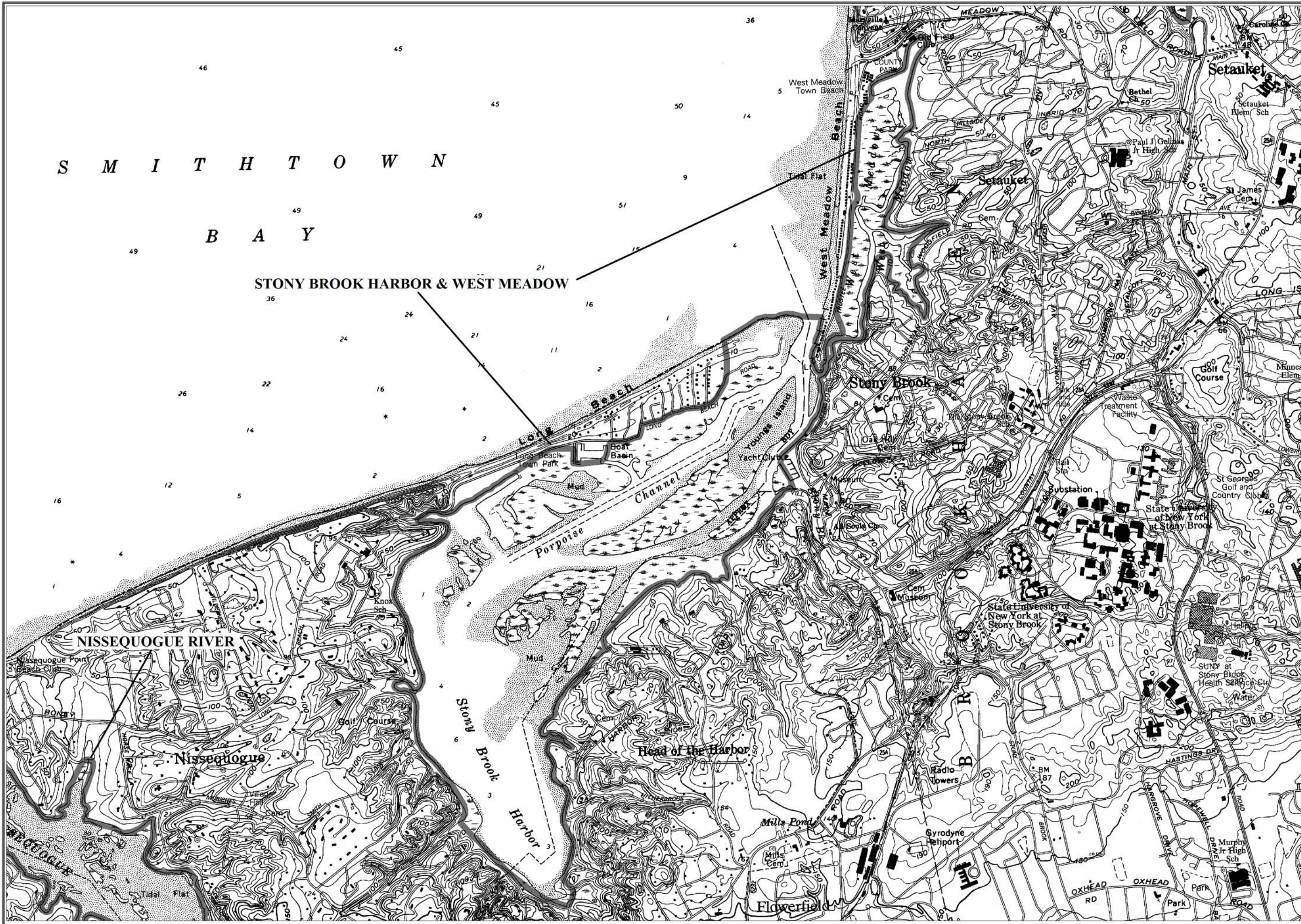
Division of Environmental Protection  
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Bureau of Marine Resources  
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S M I T H T O W N

B A Y

STONY BROOK HARBOR & WEST MEADOW

NISSEQUOGUE RIVER

Nissequogue

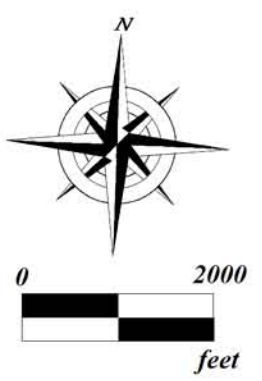
Head of the Harbor

Flowerfield

Stony Brook

State University of New York at Stony Brook

Setauket



Significant Coastal Fish and Wildlife Habitats

Stony Brook Harbor & West Meadow  
Nissequogue River (In Part)