

**Attachment B:**

COASTAL FISH & WILDLIFE HABITAT ASSESSMENT FORM

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Name of Area:	<b>Moriches Bay</b>
Designated:	<b>March 15, 1987</b>
Updated:	<b>December 15, 2008</b>
County:	<b>Suffolk</b>
Town(s):	<b>Brookhaven, Southampton</b>
7½' Quadrangle(s):	<b>Eastport, NY; Moriches, NY; Pattersquash Island, NY</b>

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<b>Assessment Criteria</b>	<b>Score</b>
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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 the largest, protected, shallow, coastal bays 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: Roseate tern (E), least tern (T), common tern (T), osprey (SC), and black skimmer (SC) nesting and feeding areas. 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: Recreational fishing, shellfishing, and waterfowl hunting in the area are significant to residents from throughout Long Island. 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: Concentrations of wintering waterfowl are of statewide significance. 16

**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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<b>Habitat Index: ( ER + SV + HU + PL ) =146.75</b>	<b>Significance = (HI x R) = 176.1</b>
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NEW YORK STATE  
SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT  
NARRATIVE

**MORICHES BAY**

LOCATION AND DESCRIPTION OF HABITAT:

Moriches Bay is located along the south shore of Long Island, between Great South Bay and Shinnecock Bay, in the Towns of Brookhaven and Southampton, Suffolk County (7.5' Quadrangles: Pattersquash Island, N.Y.; Moriches, N.Y.; and Eastport, N.Y.). This approximate 10,090 acre area is generally defined by the mean high water elevation on the west, north, and east sides and by the bayside edge of the salt marshes along the south shore. The fish and wildlife habitat of this area includes all of Moriches Bay, Moneyboque Bay, and Narrow Bay (to the Smith Point Bridge), the wetlands along Fire Island National Seashore at Floyd Point between Lawrence Creek and Home Creek, the Terrell River and the bordering wetlands (up to the Montauk Highway), and the tidal wetland portions of the William Floyd Estate. This estate, owned by the National Park Service, is one of the few remaining examples of tidal wetlands which are contiguous with an upland buffer. The entire Moriches Bay is bordered by high density residential development and small craft harbor facilities on the west, north and east sides. The barrier beaches to the south are generally undeveloped. Moriches Bay is connected to Shinnecock Bay to the east via the Quogue Canal, and to Great South Bay via Narrow Bay. Moriches Inlet, which connects Moriches Bay to the Atlantic Ocean, was formed by a breach through the barrier beach in 1931 and was stabilized by stone jetties between 1947 and 1954.

The entire bay area contains extensive areas of open water, undeveloped salt marshes, mud flats, and dredged material islands, with approximately 50% of the bay composed of marshes and shoals. Nine mainland marsh sites have been identified in the Atlantic Coast Joint Venture of the North American Waterfowl Management Plan as priority sites for acquisition or restoration. Sparsely vegetated communities of maritime beach line the shores of Moriches Bay. Maritime beach occurs on unstable sand, gravel, or cobble ocean shores above mean high tide, where the shore is modified by storm waves and wind erosion. The maritime beach is dominated by beach grass (*Ammophila breviligulata*). This community is an important nesting ground for numerous beach nesting shore birds.

Moriches Bay is the shallowest of the three south shore bays with inlets. Water depths throughout the bay are generally less than 6 feet below mean low water. Submerged aquatic vegetation beds are present in Moriches Bay, found in shallow quiet waters below the spring low tide level. Water inputs into the bay include numerous small, freshwater, coastal streams of groundwater origin, the Terrell and Forge Rivers, and ocean water. Tidal fluctuations in Moriches Bay average approximately 0.55 to 2.8 feet, with the highest fluctuations occurring in Moriches Inlet. The Moriches inlet is affected by substantial littoral drift, much of which is deposited in a sand shoal in the bay. Sediments in the bay are composed primarily of sand and gravel from glacial outwash and marine sources.

## FISH AND WILDLIFE VALUES:

Moriches Bay is one of the major protected, shallow, coastal bay areas on the south shore of Long Island, and constitutes one of the largest estuarine ecosystems in New York State. Moriches Bay is a regionally significant habitat for fish and shellfish, migrating and wintering waterfowl, colonial nesting waterbirds, beach-nesting birds, migratory shorebirds, raptors, and rare plants. This highly productive bay supports a variety of fish and wildlife species throughout the year. In a survey conducted in 1997, 105 species of special emphasis were identified in the Moriches Bay complex, including 42 species of fish and 41 species of birds. Many species of migratory birds nest among the salt marshes and dredged material islands in Moriches Bay. In recent years, roseate tern (E), least tern (T), common tern (T), and black skimmers (SC) have nested among these many islands, including: Carters Island, New Made Island, West and East Inlet Islands (near Moriches Inlet), Pattersquash Island, Swan Island, and an unnamed island (No Name Island) located approximately three-quarters of a mile northeast of New Made Island. Average annual breeding pair concentrations for the years from 1993-2005 for the aforementioned species were: 1,135 pairs of common tern (T) (4,055 in peak year), 204 pairs of least tern (T) (563 in peak year), 14 pairs of roseate tern (E) (36 in peak year), and 29 pairs of black skimmer (SC) (195 in peak year). Carters Island supported the largest number of least terns on Long Island in 1995 (516 pairs). Terns nest in large colonies located in sand, gravel, shells, and seaweed above the high tide mark. Black skimmer (SC) typically nest in association with tern colonies.

The barrier beaches bordering the bay serve as hunting grounds for migrating and wintering raptors, including northern harrier (T), peregrine falcon (E), osprey (SC), and short-eared owl (E). Moriches Bay has supported an average of at least 1 breeding pair of osprey (SC) for the six year period from 1998-2003. The habitat also serves as breeding grounds for Cooper's hawk (SC) and red-tailed hawk.

Other bird species nesting in the area include American black duck, mallard, gadwall, American oystercatcher, snowy egret, great egret, glossy ibis, great black-backed gull, laughing gull, herring gull, willet, clapper rail, fish crow, sharp-tailed sparrow, seaside sparrow, piping plover (E, T-fed), Cooper's hawk (SC), red-tailed hawk, and osprey (SC). The William Floyd Estate provides habitat for breeding American woodcock, a variety of migrating and nesting songbirds, and the rare plant, small graceful sedge (*Carex venusta* var. *minor*). Potential additional species that are critically imperiled, imperiled, or rare in New York state, according to the New York State Natural Heritage Program, and nesting in or near the area may include black crowned night heron, little blue heron, boat-tailed grackle, northern harrier (T), yellow crowned night heron, and tricolored heron. The salt marshes are used extensively as feeding areas by birds nesting in the area, and by a variety of herons, egrets, and other shorebirds.

Moriches Bay is one of the most important waterfowl wintering areas (November - March) on Long Island. Mid-winter surveys of waterfowl abundance for the ten year period from 1975-1984 indicated annual average concentration of approximately 5,000 birds observed in the bay with large populations of red-breasted mergansers and mallards. Mid-winter aerial surveys of waterfowl abundance for the thirteen year period from 1986-1998 (excluding 1997) indicate average concentrations of over 3,300 birds in the bay each year (8,039 in peak year). Concentrations of diving ducks include approximately 733 greater and/or lesser scaup (2,900 in peak year), 209 canvasback (375 in peak year), 196 common and/or hooded and/or red-breasted merganser (670 in peak year), along with lesser numbers of common goldeneye and bufflehead. Diving ducks are distributed throughout Moriches Bay, and are concentrated in the bay between Forge Point and Tuthill Point, Tuthill Cove, Hart Cove, Seatuck Cove, and the area behind Cupsogue and Westhampton Beach extending out into the bay. Concentrations of dabbling ducks during

the same time period include 1,249 American black duck (3,163 in peak year) along with lesser numbers of mallard. These dabbling ducks are more evenly distributed in small numbers along the north shore of the bay and along the back side of Cupsogue Beach and Smith Point County Park. The surveys also reported an annual average of 413 Canada goose (896 in peak year). Based on these surveys, Moriches Bay supports wintering waterfowl concentrations of statewide significance. Waterfowl use of the bay during winter is influenced in part by the extent of ice cover each year. Concentrations of waterfowl also occur in the area during spring and fall migrations (March - April and October - November, respectively). The Moriches Bay fish and wildlife habitat provides waterfowl hunting of significance primarily to Suffolk County residents. In the portions of the habitat owned by the Town of Southampton a guide is provided and required for any hunting activities.

In addition to having significant waterfowl concentrations, Moriches Bay is a productive area for marine finfish, mollusks, crustaceans, and other wildlife. Much of this productivity is directly attributable to the salt marshes and tidal flats which border the bay. Moriches Bay serves as a nursery and feeding area (April - November, generally) for bluefish, winter flounder, summer flounder, American shad, tomcod, American eel, striped bass, weakfish, American sandlance (the primary food source of the endangered roseate tern), blue crab, and forage fish species, such as Atlantic silverside, striped killifish, pipefish, and sticklebacks. A total of 55 fish species were collected during an intensive survey of the bay in 1981. Juvenile reptiles that utilize the bay, principally its sandy dune swales and mudflats, as foraging and nesting grounds include loggerhead sea turtles (T), Atlantic ridleys (E), and northern diamondback terrapins (SC). Marine mammals, including harbor seals and gray seals, use the bay in the winter, especially at a regular haulout site on Cupsogue Beach. In nearshore waters, minke whales occur throughout the year, and bottlenosed dolphin occur inshore during the summer and fall.

Moriches Inlet is an especially significant component of the bay, as a corridor for fish migrations, as a seal haulout zone, as a source for the exchange and circulation of bay waters, and as an area where feeding by many fish and wildlife species is concentrated. As a result of the abundant fisheries resources in the bay, especially winter flounder, fluke, and baitfish species, Moriches Bay receives heavy recreational and commercial fishing pressure, of regional significance. Moriches Bay is inhabited by hard clams, bay scallops, and bank mussels. Most of the bay waters are certified for commercial shellfishing with approximately 2,340 acres of permanently and 760 acres of seasonally closed waters. Landings data from the New York State Department of Environmental Conservation indicate an annual average harvest of 38,605 hard clam, 454 soft clam, 188 oyster, 24,437 mussel, 464 conch, 5,846 bay scallop, and 2,447 razor clam bushels for the 11 year period from 1993 to 2003. Moreover, harvest numbers reported for 1996-2000 for mussels and razor clams in Moriches Bay account for 49% and 16%, respectively, of average landings for the south shore of Long Island. Additionally, shellfishing is restricted to town residents in town owned waters.

Moriches Bay encompasses 1,903 acres of submerged rooted aquatic vegetation beds, accounting for approximately 21% of the entire habitat area. These beds are dominated primarily by eelgrass (*Zostera marina*) with some wigeon grass (*Ruppia maritima*). Submerged aquatic vegetation beds provide spawning and foraging habitat for an array of mollusks, crustaceans, juvenile fish, as well as diving ducks. The distribution and abundance of benthic species in the bay's eelgrass community is likely controlled by a number of factors that include eelgrass stem density, water temperature and salinity, sediment type, predation, food supply, and human harvest.

## IMPACT ASSESSMENT:

Any activity that would degrade water quality, increase turbidity, increase sedimentation, or alter flows, temperature, or water depths would affect the biological productivity of this area. All species would be adversely 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. It is essential that high water quality be maintained in the bay to protect the shellfishery. 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 Moriches 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. Elimination or degradation of salt marsh and intertidal areas, through excavation or filling, would result in a direct loss of valuable habitat area. 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 Moriches 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. Construction of new, and maintenance of existing erosion control structures which interfere with natural coastal processes 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 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 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 a 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 shorebirds inhabiting the barrier beaches of Long Island 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 barrier beaches and dunes 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 Moriches 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.

Any permanent alteration or human disturbance of the seal haulout area, or obstruction of seal migrations would adversely affect this species. Significant underwater noise, from dredging or other underwater activities, may also preclude harbor seals from using the area.

#### 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:

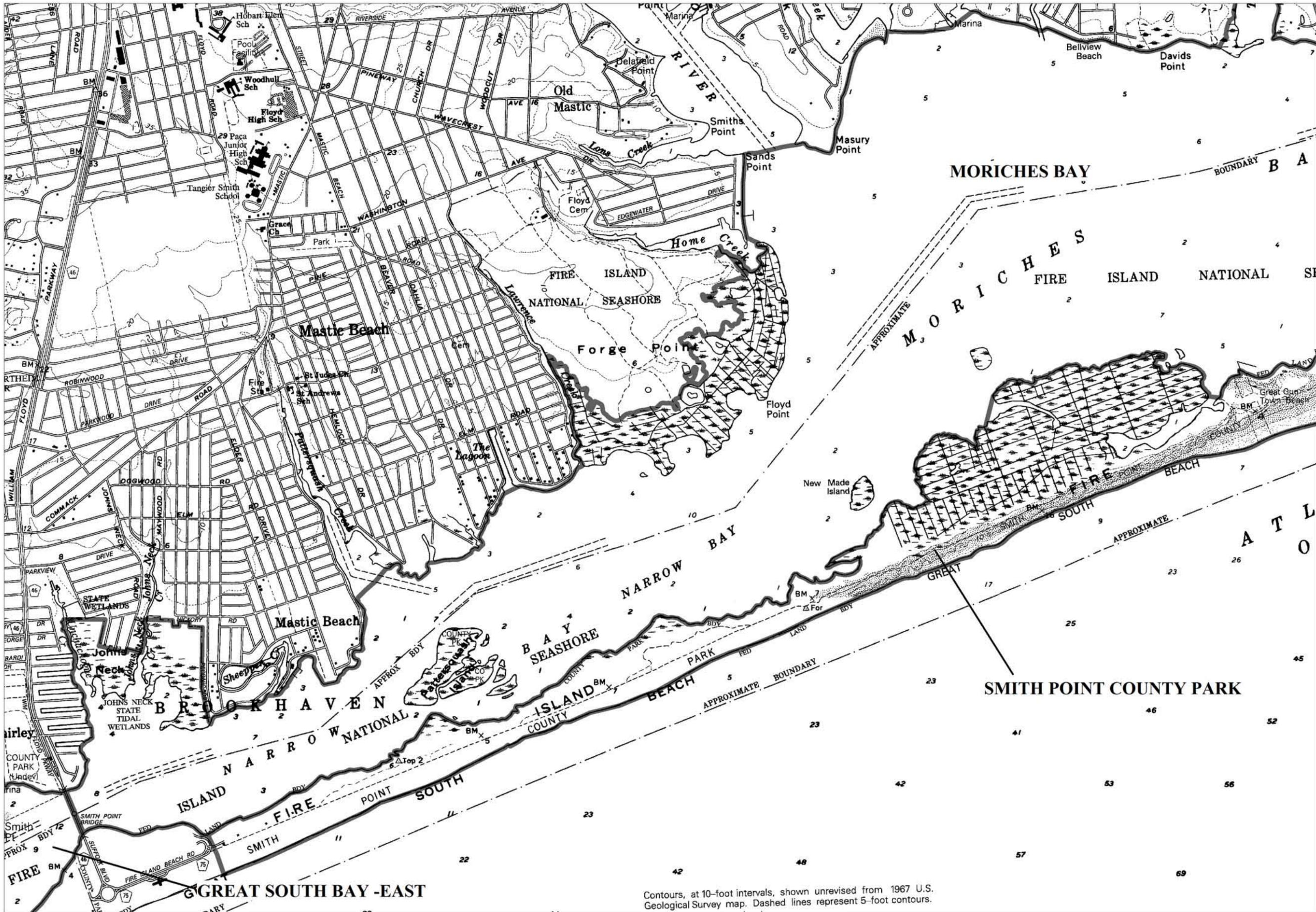
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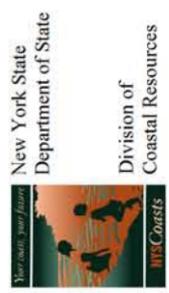
Department of Land Management  
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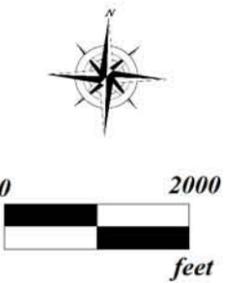


Contours, at 10-foot intervals, shown unrevised from 1967 U.S. Geological Survey map. Dashed lines represent 5-foot contours.

Significant Coastal Fish and Wildlife Habitats

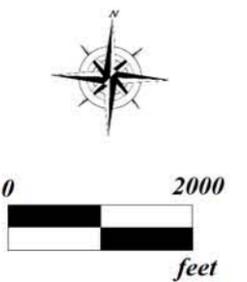
- Moriches Bay (In Part)
- part 1 of 3
- Smith Point County Park (In Part)
- Great South Bay -East (In Part)





**Significant Coastal Fish and Wildlife Habitats**

- Moriches Bay (In Part)
- part 2 of 3
- Cupsoque County Park
- Smith Point County Park (In Part)
- Westhampton Beach and Dunes (In Part)



**Significant Coastal Fish and Wildlife Habitats**

Moriches Bay (In Part)  
 part 3 of 3  
 Westhampton Beach and Dunes (In Part)