

**Attachment B:**

**COASTAL FISH & WILDLIFE HABITAT ASSESSMENT FORM**

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Name of Area: **Carmans River**  
Designated: **March 15, 1987**  
Date Revised: **December 15, 2008**  
County: **Suffolk**  
Town(s): **Brookhaven**  
7½' Quadrangle(s): **Bellport, NY; Middle Island, NY**

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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 only four major riverine ecosystems on Long Island, bordered by extensive undeveloped lands, and habitat for many rare species of New York.  
Geometric Mean:  $\sqrt{64} \times \sqrt{25} = 40$

**40**

**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), Eastern tiger salamander (E), northern harrier (T), eastern box turtle (SC), and osprey (SC) nesting and foraging area. Pied-billed grebe (T) may nest in the area, but their presence is not well documented. Additive division:  $36 + 36/2 + 25/4 + 16/8 + 16/16 = 62.25$

**62.25**

**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 for brook trout and brown trout, attracts anglers from throughout Long Island and local anglers for white perch; birdwatching important at the county level. Waterfowl hunting in the area is of regional significance.

**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: One of a few streams on Long Island that support concentrations of sea-run brown trout and wild brook trout. The largest pirate perch concentrations on Long Island; 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) = 120.25**

**Significance: (HI x R) = 144.3**

NEW YORK STATE  
SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT  
NARRATIVE

**CARMANS RIVER**

LOCATION AND DESCRIPTION OF HABITAT:

The Carmans River is located in central Long Island, extending approximately ten miles from the hamlet of Middle Island to Bellport Bay (part of Great South Bay), in the Town of Brookhaven, Suffolk County (7.5' Quadrangles: Bellport, N.Y.; and, Middle Island, N.Y.). The Carmans River drainage area is approximately 71 square miles and has an average annual discharge of approximately 25 cubic feet per second. The Carmans River is one of two rivers draining the Long Island Pine Barrens and ultimately drains into Great South Bay where it is a primary source for freshwater input. This fish and wildlife habitat includes 1,012 total acres, with approximately eight miles of freshwater river from the headwaters in Cathedral Pines County Park south to the Sunrise Highway, and approximately two miles of tidal river from the Sunrise Highway to Bellport Bay. The freshwater river segments vary from 10 to 30 feet in width and up to 10 feet in depth. The upper sections of the river contains four dams, located at Upper Mill Pond, Lower Mill Pond, Southaven Park, and the Sunrise Highway. Below the Sunrise Highway, the river widens and is bordered on both sides by extensive salt marshes, much of which is in the Wertheim National Wildlife Refuge. All lands within the Wertheim National Wildlife Refuge are federally excluded from the New York coastal area. The federally excluded portions of the habitat are marked on the boundary map. The land area along the Carmans River contains undeveloped park with residential and commercial development.

Vegetation along the freshwater river segments includes pine-oak forest and deciduous forested wetlands. As the river widens, below the Sunrise Highway, it is bordered on both sides by extensive salt marshes, much of which are in the Wertheim National Wildlife Refuge. Wertheim National Wildlife Refuge is a popular attraction on Long Island, with visitor attendance estimated at ninety-thousand a year. In the southern stretch of the Carmans River is a 555 acre high and low salt marsh community where salt hay grass (*Spartina patens*), spike grass (*Distichlis spicata*), common glasswort (*Salicornia europea*), and smooth cordgrass (*Spartina alterniflora*) dominate. There is also a brackish tidal marsh community covering an approximate 215 acre expanse, in which dominant species include salt marsh bulrush (*Scirpus robustus*), Olney three-square (*Scirpus americanus*), and wild rice (*Zizania aquatica*). This brackish marsh community begins where smooth cordgrass no longer dominates the tidal riverbank and extends to a point where green seaweed (*Enteromorpha intestinalis*) can no longer be found. Upland of the brackish tidal marsh exists a red-maple black gum swamp community. This community is dominated by black gum (*Nyssa sylvatica*), sweet pepperbush (*Clethra alnifolia*), and red maple (*Acer rubrum*). Many state-endangered and threatened plants reside in the Carmans River watershed including: pygmyweed (E) (*Crassula aquatica*), Collins' sedge (E) (*Carex collinsii*), few-flowered nutrush (E) (*Scleria pauciflora*), whip nutrush (T) (*Scleria triglomerata*), and button sedge (E) (*Carex bullata*). Each of the aforementioned communities depend on the tidal influences of the Carmans River in order to establish and maintain residence.

FISH AND WILDLIFE VALUES:

The Carmans River is one of only 4 relatively large, undisturbed, riverine ecosystems on Long Island. Despite the presence of small dams on the river, it remains an outstanding fish and wildlife habitat in the region. All of the river encompassed by the habitat has been designated by New York State as either a "Scenic River" or a "Recreational River" (under Article 15, Title 27 of the Environmental Conservation Law) to encourage the preservation and restoration of its natural scenic and recreational qualities. The tidal segment of the Carmans River is unique on Long Island in that it has extensive salt marshes on both sides of the river. This habitat is important to a great diversity of fish and wildlife species throughout the year. A variety of bird species utilize the watershed throughout the year, including peregrine falcon (E), northern harrier (T), osprey (SC) (5 nesting pairs in 2003 and an annual average of one nesting pair for the five year period from 1998-2002), sharp-tailed sparrow, seaside sparrow (SC), and clapper rail. Generally, peregrine falcon (E) return to the same nesting territory annually and nest in a myriad of conditions. Conversely, northern harrier (T) build nests on the ground, slightly elevated, with a conglomeration of sticks and grass in dense vegetation. Seaside sparrow (SC) also nest on the ground in low salt marsh and open water. Osprey (SC) nesting behavior is slightly more versatile than the northern harrier for they nest in trees as well as on the ground. Long Island constitutes one of the two main breeding populations in New York State for osprey (SC). In total, an estimated average of 100 species of migratory birds, many neotropical migrant songbirds, nest within the Carmans River watershed. Other bird species which utilize the area but are not confirmed nesters include: rough-legged hawk, broad-wing hawk, red-tail hawk, and marsh wren.

The river is frequented by many species of waterfowl in the fall and winter. Mid-winter aerial surveys of waterfowl abundance for the 13 year period from 1986-1998 (excluding 1997) indicate an average of 604 birds in the bay each year with average yearly concentrations of 148 black duck (350 in peak year), 121 mallard (367 in peak year), 224 Canada goose (1,500 in peak year), with lesser numbers of canvasback, hooded, and/or common, and/or red-breasted merganser, greater and/or lesser scaup, common goldeneye, redhead, northern shoveler, northern pintail, gadwall, and American wigeon. Six pied-billed grebe (T) were reported in Carmans River in 2001 (1986 being the last surveyed year for the species). Birdwatching along the river is significant in Suffolk County.

Other wildlife species which use the area include a variety of mammals, such as white-tailed deer, eastern cottontail, gray squirrel, racoon, opossum, and to a lesser extent, red fox, woodchuck, long-tailed weasel, mink, and muskrat. The Carmans River watershed also provides habitat for various reptiles and amphibians including snapping turtles, mud turtle (T) in the tidal portion, eastern tiger salamander (E), and the uncommon four-toed salamander in the upper segments. Eastern tiger salamander (E) are associated with sandy pine barren areas, found in the upper reach of Carmans River, and breed in pools or ponds.

The freshwater and tidal portions of the Carmans River support over 40 species of fish. Freshwater fish in the river and ponds include: brook trout (naturally reproducing population), brown trout, rainbow trout, yellow perch, and carp. Fish presence surveys for the 14 year period from 1990-2003 indicate average yearly concentrations in the river of 30 brook trout (99 in peak year), 10 brown trout (42 in peak year), 33 American eel (250 in peak year), with lesser numbers of rainbow trout. Additionally, pirate perch are abundant and concentrations are unusual for Long Island. Currently, American eel is considered a declining species in the United States and the United States Fish and Wildlife Service is investigating the alleged decline in the species' numbers to determine eligibility for listing as a species of concern. An estimated average of 34 alewife were reported from surveys conducted in the Carmans River in 1990 and 1991. Atlantic menhaden also spend a portion of their life-cycle in the river. In 1990, 133 Atlantic menhaden were surveyed in Carmans River. The river habitat functions as a nursery, spawning, and foraging ground, not only for the aforementioned species, but also for yearling striped bass, juvenile bluefish (both species are known to continuously spend a year or more in the river), sea-run brown trout, Atlantic silversides, killifish, largemouth bass, sunfish, chain pickerel, black crappie,

and the blue crab crustacean. New York State also stocks trout in the river each year. In the spring of 2004 approximately 1,210 brown trout and 1,620 rainbow trout were placed in Carmans River. A recreational fishery of regional significance exists due to sea-run brown trout concentrations. Anglers from throughout Long Island are attracted to the area for brook trout, brown trout, and white perch fishing. South Haven County Park is popular among waterfowl hunting enthusiasts across Long Island, resulting in waterfowl hunting of regional significance.

The mouth of Carmans River encompasses 26 acres of submerged rooted aquatic vegetation beds. 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 in the Carmans River or its tributaries would adversely affect the fish and wildlife species along the Carmans River significant habitat. Degradation of water quality in the River, or to its water sources, from chemical contamination (including food chain effects), oil spills, excessive turbidity, and waste disposal (including vessel wastes) would adversely affect the fish and wildlife of the interconnected waters in Great South Bay-East and Carmans River. Discharges or runoff of sewage effluent, pesticides, or other hazardous materials into the river would be detrimental to many of the resident aquatic species and also to the potential human uses of those resources. Eutrophication caused by runoff from fertilizers, septic tanks, roads, and lawns is of considerable concern, as such over-enrichment of waters may contribute to the establishment of invasive, non-native plants and concurrent displacement of the native flora.

Alteration of tidal patterns in the Carmans River could have adverse effects on the biotic communities present. No new navigation channels should be excavated within the area. Maintenance dredging should be minimized and scheduled in late summer, winter, or early spring to avoid disturbance of the fall salmonid fishery. Alewife would be especially sensitive during spring spawning (May 15 - June 15) and the sea-run brown trout would be especially sensitive during their fall spawning period (September - November). Unregulated dredged material placement in this area would be detrimental to the habitat area, but such activities may be designed to maintain or improve the habitat for certain species of wildlife. Existing and proposed dredging operations in and adjacent to this area should incorporate the use of best management practices to avoid and reduce adverse effects.

Substantial alteration of the stream channel, such as impoundment or creation of barriers to fish passage should be prohibited. Impediments to movement and migration of aquatic species, whether physical or chemical (e.g. dams, dikes, channelization, bulkheading, sedimentation, etc.), would have significant effects on biological resources of the Carmans River and should be prohibited. Plans to mitigate the impacts of existing hydrological modifications should be developed, including the rejoining of formerly connected tributaries, and the removal of obstructions or barriers to fish passage. Enhancement efforts should be monitored, and the associated habitat effects should be reported and evaluated (e.g. the amount of upstream passage opened through upstream passage projects and the passability of blockages for different species of anadromous fish). Activities within the stream itself should be scheduled to avoid disruption of the fall (September to December) spawning run of brown trout and native brook trout.

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.

Elimination or disturbance of adjacent wetland and forested habitats would adversely affect the habitat. Such areas should be protected, and where possible restored in order to maintain and/or improve water quality. Clearing of natural vegetation or bulkheading along the stream could also affect the habitat. Land disturbances within the park may significantly affect the populations of many fish and wildlife that are enjoyed by visitors to the area. Control of invasive plant species, through a variety of means, may improve fish and wildlife species use of 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.

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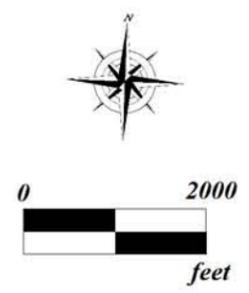
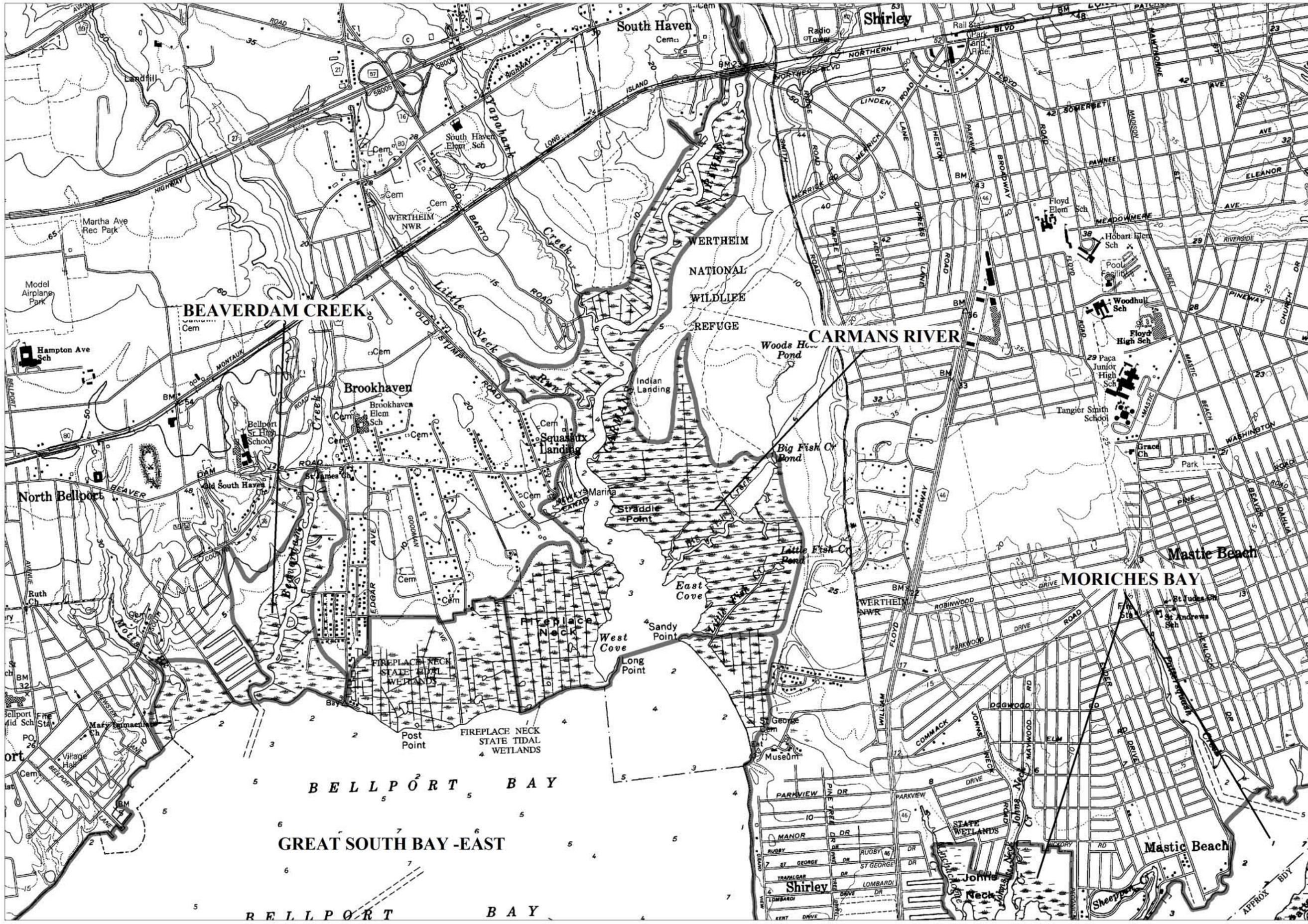
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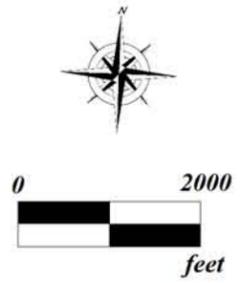
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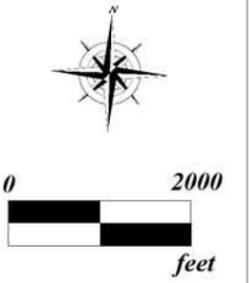
**Significant Coastal Fish and Wildlife Habitats**

- Carmans River (In Part)
- part 1 of 3
- Beaverdam Creek
- Great South Bay - East (In Part)
- Moriches Bay (In Part)



Significant Coastal Fish and Wildlife Habitats

Carmans River (In Part)  
part 2 of 3



Significant Coastal Fish and Wildlife Habitats

Carmans River (In Part)  
part 3 of 3