

COASTAL FISH & WILDLIFE HABITAT RATING FORM

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Name of Area: **Lemon Creek**

Designated: **September 15, 1992**

County: **Richmond**

Town(s): **New York City (Staten Island)**

7½' Quadrangle(s): **Arthur Kill, NY-NJ**

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<b><u>Score</u></b>	<b><u>Criterion</u></b>
<b>9</b>	Ecosystem Rarity (ER) The only natural tidal creek and wetland ecosystem remaining on the south shore of Staten Island; rare in Richmond County.
<b>0</b>	Species Vulnerability (SV) No endangered, threatened or special concern species are known to reside in the area.
<b>4</b>	Human Use (HU) Popular among local residents for birdwatching and informal nature study. Educational uses of County level significance.
<b>4</b>	Population Level (PL) This is the only location on Staten Island's south shore where concentrations of various estuarine fish and wildlife species occur; unusual in Richmond County.
<b>1.2</b>	Replaceability (R) Irreplaceable.

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SIGNIFICANCE VALUE = [( ER + SV + HU + PL ) X R]

= **20**

## **DESIGNATED HABITAT: LEMON CREEK**

### **HABITAT DESCRIPTION:**

Lemon Creek is located approximately four miles southwest of Great Kills Harbor, in southwestern Staten Island, Richmond County (7.5' Quadrangle: Arthur Kill, NY-NJ). The fish and wildlife habitat is an approximate 70 acre tidal wetland area on Lemon Creek, extending from the tidal flats southwest of its mouth on Princes Bay upstream to Woodvale Avenue. This area is predominantly salt marsh and coastal fresh marsh, bisected by a meandering creek channel, and bordered by a mixture of residential development and woodlands. Lemon Creek is an intermittent stream that drains approximately 2 square miles of rural and suburban land. Hylan Boulevard divides the area roughly into north and south halves; the northern half includes part of a 32 acre parcel (8 acres of wetland and 24 acres of surrounding upland) acquired by the NYSDEC in 1980 to preserve the area in its natural state, and most of the southern half is owned by the City of New York. However, the mouth of Lemon Creek has been developed into a small waterfront commercial center, with a boat launching ramp, marina, fishing pier, and restaurant.

### **FISH AND WILDLIFE VALUES:**

Lemon Creek is the only undisturbed tidal wetland area remaining on the south shore of Staten Island. The habitat includes the only tidal freshwater marsh area on the island. Despite its small size relative to coastal marshes on the Arthur Kill (most of which are severely disturbed or degraded), this area is inhabited by a diversity and abundance of fish and wildlife species that is unusual in Richmond County and around Raritan Bay. Bird species that regularly occur in the area during the breeding season (March-August, generally) include green-backed heron, black-crowned night heron, mallard, clapper rail, belted kingfisher, tree swallow, rough-winged swallow, purple martin, common yellowthroat, red-winged blackbird, and common grackle. The purple martins found here are from a colony established at the Lemon Creek Marina in 1951; it is the only known colony of purple martins in New York City. Many species of waterfowl, herons, shorebirds, and passerine birds use Lemon Creek as a stopover during spring and fall migrations. The mudflats and shallows at the mouth of Lemon Creek provide foraging and roosting habitat for wintering American black duck and brant. Other wintering waterfowl which use Lemon Creek include bufflehead, hooded merganser, scaup and canvasback. Muskrat and raccoon also occur along the creek. Areas such as this play an important role as habitat for commercially and recreationally important invertebrates and fishes. Although Lemon Creek is not known to be a major spawning or nursery area for any particular species, it is a unique remnant of the estuarine ecosystems that formerly occurred along the south shore of Staten Island. The creek supports concentrations of many fish species that are now uncommon around the island, and contributes to the biological productivity of adjacent marine water.

Lemon Creek has significant potential value as an urban wildlife management area. This tidal wetland provides natural habitats for many fish and wildlife species, and is accessible for a variety of recreational, educational, and scientific activities. Although public use of the area is already allowed (by permit), there are no developed trails or facilities at Lemon Creek. Formal use of the area is conducted through interpretive walks sponsored by both NYC Parks and the Protectors of Pine Oak Woods. The area is also one of several sites monitored through the NY-NJ Harbor Baykeeper citizen water quality monitoring program. As Richmond County continues to develop into an urban residential area, natural areas as this will support increasing levels of fish and wildlife related human use.

## IMPACT ASSESSMENT

A **habitat impairment test** must be met for 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** that must be met 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 below to assist in applying the habitat impairment test to a proposed activity.

Despite its current status as a NYSDEC and City of New York conservation area, Lemon Creek's fish and wildlife habitats remain vulnerable to a number of potential impacts. Surrounding land uses may be the most important factor affecting the fish and wildlife resources of this area. Encroachment of human disturbance, including industrial, commercial, or residential development could have significant impacts on various species using the area. Discharges of polluted runoff (containing sediments or chemical pollutants, such as pesticides) from adjacent areas) would seriously degrade the wetland and aquatic habitats in Lemon Creek. Other forms of water pollution that would adversely affect the area include oil spills, waste disposal, and sewage discharges. Alteration of tidal patterns in Lemon Creek would have major impacts on fish, shellfish, and wildlife use of these areas. Dredging to facilitate motorboat traffic at the mouth of Lemon Creek should be scheduled in late fall and winter to minimize potential impacts on aquatic organisms. However, expansion of marina facilities upstream from existing facilities should be restricted, since elimination of salt marsh and intertidal areas (through excavation or filling) would result in a direct loss of valuable habitat area. Construction and maintenance of shoreline structures, such as docks, piers, bulkheads, or revetments, in areas not previously disturbed by development (i.e., natural tidal marsh or mudflats) may have significant impacts on the fish and wildlife resources of Lemon Creek. Barriers to fish migration, whether physical or chemical, would adversely affect use of the area by many estuarine dependent species. Compatible public uses of the area should be maintained or enhanced to utilize this valuable fish and wildlife resource.