COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Meadow and Willow Lakes**

Designated: **September 15, 1992**

County: **Queens**

Town(s): **New York City (Queens)**

7½' Quadrangle(s): **Jamaica, NY**

Score	**Criterion**
12	Ecosystem Rarity (ER) These two water bodies form one of the largest expanses of fresh-water in New York City, but rarity reduced by human disturbance. Geometric mean: $(9 \times 16)^{½} = 12$.
0	Species Vulnerability (SV) No endangered, threatened or special concern species are known to reside in the area.
9	Human Use (HU) A popular recreational fishing and birdwatching area for New York City residents.
4	Population Level (PL) Concentrations of various fish and wildlife species in the area are unusual in northern Queens County.
1.2	Replaceability (R) Irreplaceable, due to lack of suitable replacement sites.

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

= **30**

DESIGNATED HABITAT: MEADOW AND WILLOW LAKES

HABITAT DESCRIPTION:

Meadow and Willow Lakes are located in Flushing Meadows Corona Park, approximately two miles south of Flushing Bay, in the Borough of Queens, Queens County (7.5' Quadrangle: Jamaica, NY). The fish and wildlife habitat is an approximate 140-acre area, encompassing these two freshwater lakes, and a connecting channel. Meadow Lake is an approximate 100-acre, shallow, fresh-water impoundment, created as a result of filling tidal wetlands at the south end of Flushing Bay. This lake is surrounded by an extensive recreation area, including mowed lawn areas, bike paths, and parking lots. On the other hand, Willow Lake is a 40-acre, natural, spring-fed lake, subject to relatively little habitat disturbance. This lake has a fringe of emergent marsh vegetation, sedge meadow, productive littoral zones, and a border of unmanaged fields and woodlands. Habitat disturbances at Meadow and Willow Lakes include road crossings, development of recreation facilities, and refuse disposal. The entire area is owned by the City of New York.

FISH AND WILDLIFE VALUES:

Meadow and Willow Lakes comprise one of the largest expanses of freshwater in Queens County, and within New York City. Despite the considerable human disturbances of this area, these water bodies are used by a variety of fish and wildlife species. Willow Lake, with its natural shoreline and surrounding marshes and fields, provides a combination of wildlife habitats rarely found in the New York City metropolitan area. The lake and contiguous wetlands provide habitat for herons, waterfowl, and passerines, especially during spring (March-May) and fall (September-November) migrations, and to a lesser extent during the nesting season. Probable or confirmed breeding bird species in the area include Canada goose, mallard, common moorhen, American kestrel, marsh wren, red-winged blackbird, and swamp sparrow. Meadow and Willow Lakes also support a relatively productive warmwater fishery, dominated by largemouth bass, panfish, and carp. Residents from throughout New York City are attracted to the freshwater fishing and birdwatching opportunities at Meadow and Willow Lakes.

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:
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> - destroy the habitat; or,
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> - 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, Meadow and Willow Lakes 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 around Willow Lake, including industrial, commercial, or residential development could have significant impacts on various species using the area. Discharges of polluted runoff (containing sediments, nutrients, or chemical pollutants) from adjacent areas could seriously degrade the wetland and aquatic habitats in Meadow and Willow Lakes. Elimination of productive wetland and littoral 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 may have significant impacts on the fish and wildlife resources of Meadow and Willow Lakes. Temporary habitat disturbances would be most detrimental during fish spawning and nursery periods, which generally extend from April through July. However, the fact that existing conditions in Meadow Lake are largely the result of human activities suggests that some allowance for construction and maintenance of active recreation facilities is appropriate there; these facilities should be oriented to the resource values of the area and not towards intense recreational facilities. Management of Willow Lake should be towards passive recreation

with the surrounding meadow and woodlands preserved to the greatest extent possible. These surrounding unmanaged lands are an integral part of the resource value of the area and contribute to protection of water quality in the lakes. Barriers to fish migration between the lakes, whether physical or chemical, could adversely affect use of the area by various aquatic species.