

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **North and South Brother Islands**

Designated: **September 15, 1992**

County(ies): **Bronx**

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

7½' Quadrangle(s): **Central Park, NY-NJ**

<u>Score</u>	<u>Criterion</u>
25	Ecosystem Rarity (ER) Relatively undisturbed wooded islands, unusual in the New York metropolitan area (Manhattan Hills ecological region).
0	Species Vulnerability (SV) No endangered, threatened or special concern species are known to reside in the area.
0	Human Use (HU) No significant fish or wildlife related human uses of the area.
9	Population Level (PL) One of only 5 large heronries active in the Manhattan Hills ecological region, and one of only 2 double-crested cormorant colonies in southeastern New York.
1.0	Replaceability (R) Uncertain of ability to replace the habitat or the population level.

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

= **34**

DESIGNATED HABITAT: NORTH AND SOUTH BROTHER ISLANDS

HABITAT DESCRIPTION:

North and South Brother Islands are located in the East River, approximately one-quarter mile west of Riker's Island, in the Borough of Bronx, Bronx County (7.5' Quadrangle: Central Park, NY-NJ). The fish and wildlife habitat consists of two islands: South Brother Island is approximately 10 acres in size, uninhabited, rocky, and wooded; North Brother Island is 15 acres in size, with a mix of abandoned buildings and deciduous woods. Both North and South Brother Islands are owned by the City of New York and are presently uninhabited.

FISH AND WILDLIFE VALUES:

North and South Brother Islands provide an undisturbed upland environment for wildlife that is rare in coastal portions of the New York City metropolitan area. The primary significance of this habitat is its use for nesting by relatively large numbers of colonial waterbirds (herons, especially), one of only about five such concentration areas in the Manhattan Hills ecological region. This nesting area probably accounts for many of the egrets and night herons seen in lower Bronx, Queens, and New York Counties. The South Brother Island heronry was discovered in 1978, when there were an estimated 30 pairs of cattle egrets, 80 pairs of snowy egrets, and 76 pairs of black-crowned night herons (population sizes vary from year to year). At that time, it was the largest breeding concentration of cattle egrets in the area, virtually doubling the known population, and bringing to 3 the number of known regular colonies around Long Island.

In 1989, South Brother Island supported 784 nesting pairs of birds including 2 pairs of cattle egrets, 9 pairs of great egrets, 32 pairs of snowy egrets, and 183 pairs of black-crowned night herons (population sizes vary from year to year). North Brother Island has a new and growing population of black-crowned night herons, with 135 nesting pairs documented in 1989.

In 1983, a nesting colony of double-crested cormorants was discovered on South Brother Island with 68 active nests. In 1989, there were 383 pairs of these birds nesting on South Brother Island. This is only the second cormorant colony found in recent times in southeastern New York. The long term use of this and other New York City sites suggests that there is a relative shortage of suitable nesting areas in this region.

In addition to the heron populations, North and South Brother Islands have nesting colonies of herring gull and great black-backed gull. In 1989, breeding populations of these species on the islands were estimated at 75 pairs, and 100 pairs, respectively. Gulls generally nest on bare rocks around the edges of the islands. Field investigations in the summer of 1991 also found an unusual occurrence of gulls nesting within wooded areas. Canada geese are also known to nest on the island. The extent to which other wildlife species use the area has not been documented. There are no significant fish or wildlife related human uses of North and South Brother Islands.

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.

Any activity that would disturb the North and South Brother Islands heronries during the nesting period (mid-March - August), including significant pedestrian traffic or recreational vehicle use (e.g., boat-landings),

could adversely affect these bird populations. Freedom from human disturbance while early spring roosts are established and maintained may also be critical to colony use in the ensuing breeding season. Removal of the islands' upland forest habitat would have a significant impact on heron populations in the New York City area. Disturbance or elimination of preferred wetland feeding areas (possibly distant, but poorly documented) may also affect birds nesting at North and South Brother Islands. Introduction or attraction of mammalian predators, including pet animals, into nesting areas could also be detrimental to the colonial bird populations.