

COASTAL FISH & WILDLIFE HABITAT RATING FORM

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Name of Area: **Grenadier Island**

Designated: **August 15, 1993**

County(ies): **Jefferson**

Town(s): **Cape Vincent**

7½' Quadrangle(s): **Cape Vincent South, NY**

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**Score**      **Criterion**

- 25**      Ecosystem Rarity (ER)  
A very large, isolated, and undisturbed island; rare in the Great Lakes Plain ecological region.
- 40**      Species Vulnerability (SV)  
Northern harrier (T), short-eared owl (SC), upland sandpiper (SC), vesper sparrow (SC), and grasshopper sparrow (SC) nesting area.  
Additive division:  $25 + 16/2 + 16/4 + 16/8 + 16/16 = 40$ .
- 0**      Human Use (HU)  
No significant wildlife related human uses of the area.
- 9**      Population Level (PL)  
An important area for wintering raptors in the Great Lakes Plain ecological region.
- 1.2**      Replaceability (R)  
Irreplaceable
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SIGNIFICANCE VALUE = [( ER + SV + HU + PL ) X R]

= **89**

## DESIGNATED HABITAT: GRENADIER ISLAND

### HABITAT DESCRIPTION:

Grenadier Island is located in the northeastern corner of Lake Ontario, in the Town of Cape Vincent, Jefferson County (7.5' Quadrangle: Cape Vincent South, NY). The fish and wildlife habitat is large, isolated and relatively undeveloped island of approximately 1,700 acres in size. Vegetation on the island consists of abandoned fields, shrubs and grasslands with little or no trees. The island had been previously used as pastureland.

### FISH AND WILDLIFE VALUES:

Grenadier Island is one of only five similar islands based on underlying geology, exposure to prevailing westerly winds, and lack of human disturbance. These large, isolated, relatively undisturbed islands are rare in the Great Lake Plain ecological region. The combination of extensive open grasslands and limited human disturbance on the island provide favorable habitat conditions for ground nesting birds.

Grenadier Island is an important passerine and raptor breeding area. Since 1987, several pairs of northern harriers (T) have been documented nesting on Grenadier Island. In 1990, a pair of short-eared owls (SC) were documented nesting on Grenadier Island. Lack of human disturbance, extensive grasslands, and abundant food sources combine to provide a high quality habitat for these raptors. Both of these raptors depend on the abundant meadow vole populations present on the island. In addition, upland sandpiper (SC), grasshopper sparrow (SC), and vesper sparrow (SC) are confirmed nesters on Grenadier Island. Other probable or confirmed nesting species on Grenadier Island include gray catbird, killdeer, red-winged blackbird, common grackle, song sparrow, bobolink, and eastern meadowlark. Grenadier Island is also a significant raptor wintering area, with documented use by rough-legged hawk, long-eared owl, and snowy owl. High meadow vole populations and lack of human disturbance combine to provide favorable winter habitat conditions for these birds. The island is probably visited by gulls and used by waterfowl as a refuge during storms, but the extent of this use is not well documented. There are no significant fish or wildlife related human uses of the area.

### IMPACT ASSESSMENT:

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 below to assist in applying the habitat impairment test to a proposed activity.

Any activity that would disturb nesting raptors at Grenadier Island during the nesting period (April - August) could adversely affect this population of ground nesting birds. Human activities in the nesting areas should be minimized during this period. Introduction or attraction of mammalian predators, including pet animals, could also be detrimental to the bird populations. All species of wildlife may be adversely affected by waste disposal, and discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides, or insecticides). The use of chemical pesticides or herbicides could adversely affect the birds nesting on Grenadier Island. Conversion of open fields to residential development would directly reduce the amount of available nesting and wintering habitat, especially if development introduced year-round residents to the island. Succession of the island's vegetation to forest would eliminate much of the habitat value for these groundnesting birds. Therefore, habitat management activities, such as manipulation of vegetative cover, may be necessary in the future to ensure the survival of the ground nesting birds at Grenadier Island. Suitable vegetative manipulation may be achieved through particular agricultural activities.