

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Wilson Bay and Marsh**

Designated: **August 15, 1993**

County(ies): **Jefferson**

Town(s): **Cape Vincent**

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

Score **Criterion**

- 16** Ecosystem Rarity (ER)
One of the largest, undisturbed, scrub-shrub and forested wetlands on Lake Ontario; rare in ecological subregion.
- 24** Species Vulnerability (SV)
Blanding's turtles (T) reside in the area; also black tern (SC) nesting. Additive division: $25 + 16/2 = 33$.
- 14** Human Use (HU)
An important waterfowl hunting area in the Thousand Islands region. Regionally significant birdwatching area.
Additive division: $9 + 9/2 = 14$.
- 16** Population Level (PL)
Largest black tern colony in New York State; also a major spawning and nursery area for northern pike in the eastern Lake Ontario ecological subregion.
- 1.2** Replaceability (R)
Irreplaceable.
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SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R]

= **84**

DESIGNATED HABITAT: WILSON BAY AND MARSH

HABITAT DESCRIPTION:

Wilson Bay and Marsh is located in the northeastern corner of Lake Ontario, approximately three miles south of the Village of Cape Vincent, in the Town of Cape Vincent, Jefferson County (7.5' Quadrangle: Cape Vincent South, NY). The fish and wildlife habitat encompasses the open waters of Wilson Bay, and an approximate 200 acre flood pond wetland located at the head of the bay. Wilson Bay has a maximum depth of approximately 25 feet, a sand and cobble bottom, and beds of submergent aquatic vegetation in shallow areas. Wilson Bay Marsh is located behind a barrier beach which has been stabilized by the construction of a road across its top. The wetland is dominated by an extensive area of flooded shrubs and emergent vegetation. The transition to surrounding uplands occurs through an equally extensive area of forested wetland. Several small intermittent streams drain into Wilson Bay Marsh, and exit mostly through a single culvert and water control wiew in the barrier beach. There is a second culvert at the northeast corner that only drains during high water. The land area surrounding the north, east, and south sides of Wilson Bay and Marsh is primarily rural farmland, including pastures, abandoned fields, and woodlots, along with some cottage development around the bay shoreline. The interior of the wetland area is essentially undisturbed, but some grazing and watering of livestock has occurred along its southern edge.

FISH AND WILDLIFE VALUES:

Wilson Bay Marsh is one of the largest areas of predominantly scrub-shrub and forested flood pond wetland on Lake Ontario. In addition to its vegetative significance, the marsh is unusual because of its relative isolation and inaccessibility. Wilson Bay is an integral part of the habitat, especially for certain fish populations in the area, which move between the bay and marsh during their life cycle.

Wilson Bay Marsh is a valuable breeding area for a variety of waterfowl, including wood duck, American black duck, mallard, and blue-winged teal. A colony of black terns (SC) breed in the marsh, with an estimated 60 nesting pairs documented in 1989. Recent survey work documented 60 and 65 nesting pairs of birds in 1990 and 1991, respectively. This is the largest colony in New York State and comprises 25% of the total number of nesting black terns statewide. Both adult and juvenile black terns feed in the productive shallows of Wilson Bay. Other probable or confirmed nesting bird species in the area include common gallinule, belted kingfisher, eastern kingbird, marsh wren, red-winged blackbird, and Savannah sparrow. Concentrations of black-crowned night herons have also been reported roosting and feeding in the area. During spring and fall migrations (March - May, and September - November, generally), Wilson Bay and Marsh serve as resting and feeding areas for many bird species, including dabbling and diving ducks and a variety of passerine birds. Osprey (T) have also been observed using the area, but the extent of this use is not well documented. Blanding's turtles (T) have been documented to be residing in the area, using both marsh and upland areas during their life cycle. Other wildlife species occurring in Wilson Bay Marsh and around the bay shoreline include raccoon, muskrat, mink, beaver, painted turtle, snapping turtle, and northern water snake. The diversity and abundance of wildlife at Wilson Bay and Marsh provide substantial opportunities for fishing, hunting, trapping, swimming, birdwatching, and informal nature study. The most popular uses of the area are waterfowl hunting and birdwatching, which attracts visitors from throughout Jefferson County. Swimming and picnicing has become a popular use on the Wilson Bay side of the barrier beach. However, recreational uses are somewhat limited because the marsh is relatively inaccessible and privately owned.

Wilson Bay and Marsh is an important fish spawning and nursery area in Lake Ontario. Studies of Wilson Bay Marsh in the mid-1970's indicated that it was a major producer of northern pike, facilitated by the water level control structure on the outlet stream and by an abundance of fathead minnows (a forage species) in the area. Many adult pike enter the marsh to spawn in April and early May; young-of-the-year fish move out

into the bay beginning in early summer (before water levels fall below the outlet structure), or in the fall, after a freshet reopens the outlet. Young-of-the-year and juvenile northern pike are found throughout the weedy shallows in Wilson Bay, which supports a sizeable resident population of this species. Spawning runs of white sucker and brown bullhead also enter Wilson Bay Marsh in the spring. Like many areas around eastern Lake Ontario, Wilson Bay is a productive area for smallmouth bass, yellow perch, and white perch. The diverse warmwater fisheries in the bay support significant recreational use by Jefferson County anglers. In addition, species such as yellow perch, brown bullhead, and fathead minnow are sought after by local commercial fishermen.

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 substantially degrade water quality, increase turbidity or sedimentation, reduce water levels, or increase water level fluctuations in Wilson Bay and Marsh, could adversely affect fish and wildlife populations. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides, or insecticides) may result in adverse impacts on fish and wildlife resources of the area. Elimination of wetland habitats, and significant human encroachment into the area, through dredging, filling, or construction of roads, could reduce its value to fish and wildlife. Construction and maintenance of shoreline structures should be designed to minimize disturbance of bottom substrates and submergent vegetation. Temporary habitat disturbances, such as firewood cutting, would be most detrimental during fish and wildlife breeding seasons, which generally extend from March through July for most species. However, habitat management activities, including expansion of productive littoral areas, may be designed to maintain or enhance populations of certain fish or wildlife species. Activities that would subdivide this large, undisturbed area into smaller fragments should be restricted. Barriers to fish migration through the marsh outlet, whether physical or chemical, could have significant impacts on fish populations in the area. Existing areas of natural vegetation within and bordering Wilson Bay and Marsh should be maintained for their value as cover for wildlife, perching sites, and buffer zones. However, development of public access to the area may be desirable to ensure that adequate opportunities for compatible human uses of the fish and wildlife resources are available.