

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Lake of the Isles**

Designated: **August 15, 1993**

County(ies): **Jefferson**

Town(s): **Alexandria, Orleans**

7½' Quadrangle(s): **Alexandria Bay, NY; Thousand Island Park, NY**

Score **Criterion**

- 16** Ecosystem Rarity (ER)
One of the largest shallow bay and wetland ecosystems in the St. Lawrence River ecological subzone.
- 25** Species Vulnerability (SV)
Blanding's turtle (T) reside in the area.
- 9** Human Use (HU)
One of the most popular recreational fishing areas in the Thousand Islands Region.
- 6** Population Level (PL)
Concentrations of many warmwater fish species and migratory waterfowl are unusual in the St. Lawrence River ecological subzone. Geometric mean: $(4 \times 9)^{1/4} = 6$.
- 1.2** Replaceability (R)
Irreplaceable
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SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R]

= **67**

DESIGNATED HABITAT: LAKE OF THE ISLES

HABITAT DESCRIPTION:

Lake of the Isles is located in the center of Wellesley Island, approximately three miles west of the Village of Alexandria Bay, in the Towns of Alexandria and Orleans, Jefferson County (7.5' Quadrangles: Alexandria Bay, NY; and Thousand Island Park, NY). The fish and wildlife habitat is an approximate 1,300 acre embayment of the St. Lawrence River, that is almost completely enclosed by Wellesley Island and Hill Island. The "lake" is somewhat isolated from river flows, having only two small (approximately 200 feet wide) connections to it, both at the north end.

Lake of the Isles is relatively shallow throughout (maximum depth is about 15 feet below mean low water), and contains extensive beds of submergent aquatic vegetation (e.g., wild celery, naiads, and pondweeds). More than a dozen small islands are scattered throughout the lake. Two large emergent wetland areas (and several smaller ones) are included in the habitat. These are: Barnett Marsh, an approximate 150 acre streamside wetland extending one mile inland from the southeast side of the lake; and Otter Point Marsh, an approximate 160 acre bay and flood pond wetland complex extending from the southwestern end of the lake towards Eel Bay. The land area surrounding Lake of the Isles is predominantly forested; however, habitat disturbances have been increasing since the 1960's, including development of seasonal camps and permanent residences around the shoreline, construction of roadways through Otter Point Marsh, and use of motorboats in the area. Barnett Marsh, on the other hand, remains in a near natural condition. DeWolf Point State Park occupies a small part of the lake's north shore, but all other adjacent lands are privately owned.

FISH AND WILDLIFE VALUES:

Lake of the Isles is one of the largest coastal bay ecosystems on the St. Lawrence River. This area is somewhat unique in the region because of its limited connection to the St. Lawrence River, creating a highly sheltered and productive aquatic environment. Barnett Marsh remains in an unusual state of preservation, and along with other wetland areas around the bay, is an integral part of the habitat. Although human activities have resulted in some habitat disturbance, and major tributary streams are lacking, Lake of the Isles supports significant concentrations of many fish and wildlife species.

Lake of the Isles provides valuable habitats for a variety of migratory bird species. Extensive wetlands and undisturbed shoreline areas serve as productive nesting and feeding habitats for waterfowl and other marsh birds, including pied-billed grebe, green heron, American bittern, mallard, American black duck, blue-winged teal, wood duck, Virginia rail, sora, common gallinule, belted kingfisher, marsh wren, red-winged blackbird, and swamp sparrow. Other possible breeding birds in the area include common loon (SC), least bittern (SC), and northern harrier (T); these species have been observed at Lake of the Isles during nesting season, but nesting locations have not been confirmed. The marshes and shallows around the lake are also used as feeding areas by great blue herons and common terns (T) nesting in the vicinity, but the extent of use by these birds has not been documented.

Lake of the Isles is one of about five principal water areas on the St. Lawrence River that are regularly used for feeding and resting by diving ducks during spring (March - April) and fall (October - November primarily) migrations, with several thousand birds reported in the area in some years. Some of these birds may remain in the area in winter, depending on the extent of ice cover. Mid-winter aerial surveys of waterfowl abundance for the period 1986-1991 indicate average concentrations of over 500 birds on the lake each year (1,436 in peak year), including mergansers, common goldeneye, scaup, American black duck, and mallard.

A diversity of non-avian wildlife species also occurs at Lake of the Isles. Species inhabiting the area include muskrat, beaver, raccoon, various frogs and turtles, and northern water snake. Of particular significance is the occurrence of Blanding's turtle (T) in Lake of the Isles, one of only two known concentration areas for this species in New York's portion of the St. Lawrence River. Exact breeding locations have not been identified, but probably occur in or around major wetlands adjoining the bay.

Lake of the Isles has outstanding habitat values for resident and river-based fisheries resources. The extensive beds of aquatic vegetation, high water quality, shelter from strong winds and wave action, and undeveloped shoreline areas, create highly favorable conditions for spawning and nursery use by many warmwater fish species. Included among these are bowfin, northern pike, largemouth bass, brown bullhead, rock bass, pumpkinseed, bluegill, black crappie, and yellow perch. Several uncommon species, such as yellow bullhead and chain pickerel are also found in the area. Lake of the Isles is a major concentration area in the river for many of these species, and is especially renowned for its largemouth bass population. Many trophy size bass have been taken here (including the St. Lawrence River record), attracting fishermen from throughout the Thousand Islands region. Many anglers are also attracted to Lake of the Isles by its excellent year-round fisheries for pike and various panfish species. Access to the area for recreational fishing is available from De Wolf Point State Park and from private facilities on the bay and at nearby river locations.

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 in Lake of the Isles could affect the biological productivity of this area. All species of fish and wildlife may be adversely affected by water pollution, such as oil spills, excessive turbidity or sedimentation, waste disposal, and discharges of sewage or stormwater runoff containing chemical pollutants (including fertilizers, herbicides, or insecticides). Spills of oil or other hazardous substances are an especially significant threat to waterfowl concentrations in this area. Efforts should be made to maintain high water quality throughout the bay, including control of sewage discharges from recreational boats and upland sources.

Disturbances of littoral areas or wetland vegetation, through dredging, filling, bulkheading, or other shoreline construction activities (including development of motorboat access facilities), could adversely affect fish and wildlife through direct loss of habitat or increased human disturbance during fish spawning and nursery periods (April - July for most warmwater species) and wildlife breeding seasons (April - July for most species). Significant boat traffic within the area during fall may also impair use of the area by migrant waterfowl. Common loons (SC) may nest on small islands in Lake of the Isles, and if so, human activity (e.g., motorboat traffic, fishing) around occupied sites should be minimized during the nesting season. However, increasing public access to the area may be desirable to ensure that adequate opportunities are available for compatible human uses of the fish and wildlife resources. Enhanced access should be confined to existing access sites to minimize potential disturbance of sensitive fish and wildlife species. Activities that would subdivide or cause significant human encroachment into sizeable wetland areas should be restricted. Substantial alteration or fluctuation of water levels in the St. Lawrence River could also affect fish and wildlife use of Lake of the Isles. Natural freshwater flows into and out of the bay should be maintained. Barriers to fish migrations between Lake of the Isles and the St. Lawrence River could have significant impacts on fish populations in the area. Existing areas of natural vegetation bordering the bay should be maintained for their value as cover, perch sites, and buffer zones from human disturbance.