COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Eel Bay**

Designated: **August 15, 1993**

County(ies): **Jefferson**

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

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

Score	**Criterion**
16	Ecosystem Rarity (ER) An extensive, undisturbed, shallow bay with beds of submergent vegetation; unusual in the St. Lawrence River ecological subzone.
48	Species Vulnerability (SV) Pugnose shiner (E) and blackchin shiner (SC) found in the area. Also common loon (SC) nesting area. Additive division: 36 + 16/2 + 16/4 = 48.
16	Human Use (HU) The most popular fishing area for northern pike in the Thousand Islands region, attracting anglers from throughout New York State and beyond.
6	Population Level (PL) One of about 5 major concentration areas in the St. Lawrence River ecological subzone for diving ducks during migration. Geometric mean: $(4x9)^{½} = 6$.
1.2	Replaceability (R) Irreplaceable

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

= **103**

DESIGNATED HABITAT: EEL BAY

HABITAT DESCRIPTION:

Eel Bay is located in the upper St. Lawrence River, on the west side of Wellesley Island, in the Towns of Orleans and Clayton, Jefferson County (7.5' Quadrangle: Thousand Island Park, NY). The fish and wildlife habitat is an approximate 2,100 acre shallow bay, containing extensive beds of submergent aquatic vegetation (e.g., wild celery, pondweeds, and muskgrass), a fringe of emergent marsh vegetation, and several small islands including Big Gull and Little Gull Islands. The habitat extends southwest to the shores of Murray Isle and Picton Island. There are two sizeable emergent wetland areas, totalling about 75 acres, around the bay shoreline. The larger wetland lies between Flat Iron Island and the north shore, and the smaller one occupies the northeast corner of the bay. Average water depths in Eel Bay range from 6 to 10 feet, depending on water levels in the St. Lawrence River. The bay bottom is covered variously with soft silt, peat, or clay, except near the south shore, which is rocky. Eel Bay is somewhat sheltered from prevailing winds and wave action, by being situated in the lee of Grindstone Island. Water circulation is substantial with a large channel cutting from the southwest corner and along the shore of Grindstone Island.

The mainland surrounding Eel Bay is almost entirely within Wellesley Island State Park, and remains in a relatively undisturbed natural condition. Private lands with seasonal camps and residences occur only at the hamlet of Grandview Park, on several small islands in the bay, and just east of the larger wetland area. Public access to the area is available from a State boat launching site on the east side of the bay, and from the Minna Anthony Common Nature Center located near the south shore of Eel Bay, in Wellesley Island State Park.

FISH AND WILDLIFE VALUES:

Eel Bay is one of the most extensive shallow bay areas in the St. Lawrence River. Sheltered littoral areas of this size and quality are unusual in the St. Lawrence River ecological subzone. The combination of productive aquatic beds, good water circulation, and lack of human disturbance in this area provides highly favorable habitat conditions for a variety of fish and wildlife species.

Eel Bay is one of about five major waterfowl concentration areas in the St. Lawrence River. The bay provides excellent food resources for a variety of migratory bird species, especially diving ducks, such as scaup, canvasback, common goldeneye, redheads, and mergansers. Concentrations of several thousand birds have been observed in the area during spring (March - April) and fall (September - November, primarily) migrations in some years. Migrant waterfowl populations in Eel Bay attract considerable hunting pressure by residents of the Thousand Islands region. Considerable numbers of other waterbirds, including loons, grebes, herons, and shorebirds, also occur in the area during migration. Waterfowl utilize Eel Bay to a lesser extent during winter, depending on the amount of ice cover in the area. Bald eagles (E) have been observed using perches on various islands in the bay for hunting and roosting during the winter, although the extent of use is not well documented. Due to the lack of vegetative cover, Eel Bay provides limited breeding habitat for marsh-nesting birds. However, common loons (SC) have breed regularly in the bay since at least the 1950's, and active nests are located on islands in the bay. This is one of the only confirmed breeding locations for this species on the St. Lawrence River. Big Gull Island continues to have marginal common tern colonies, with only two nests in 1986 and 1987. Various species of gulls and terns, including common tern (T) and black tern (SC), feed in the area during ice-out periods.

Eel Bay is probably an important fish spawning and nursery area in the St. Lawrence River. Although quantitative data are generally lacking, the bay provides suitable habitat for various resident warmwater species, including large and smallmouth bass, yellow perch, brown bullhead, and panfish, such as rock bass, and pumpkinseed. Other fish species documented in the area include the rare pugnose shiner (E) and the blackchin shiner (SC). Eel Bay is an especially important concentration area for young and adult northern

pike, supporting the best year-round recreational fishery for this species on the St. Lawrence River. Anglers from throughout New York State and beyond are attracted to this 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:
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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.

Any activity that would substantially degrade water quality in Eel Bay 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. Disturbance of littoral areas or wetland vegetation, through dredging, filling, bulkheading, or other shoreline construction activities (including development of motorboat access facilities) would adversely affect fish and wildlife through direct loss of habitat, and through increased human disturbance during fish spawning and nursery periods (April - July for most warmwater species).

Development of additional public access opportunities to the area may be desirable, but should be located at existing access points to minimize potential disturbance of productive shallow areas. Significant human activity (e.g., motorboat traffic, fishing) on or around small islands used for nesting by common loons (SC) (from April through July) should be minimized during this period. Annual or permanent posting of active nesting areas may be desirable to help protect breeding loons from human disturbance. Substantial alteration or fluctuation of water levels in the St. Lawrence River could also affect fish and wildlife use of the area. Existing areas of natural vegetation bordering Eel Bay and on the islands in the bay, should be maintained to provide cover for wildlife, perching sites, soil stabilization, and buffer zones from human disturbance.