

COASTAL FISH & WILDLIFE HABITAT RATING FORM

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Name of Area: **St. Lawrence River Shoreline Bays**

Designated: **August 15, 1993**

County(ies): **Jefferson**

Town(s): **Clayton, Orleans, Alexandria, Cape Vincent**

7½' Quadrangle(s): **Clayton, NY; Thousand Island Park, NY; Alexandria Bay, NY;  
St. Lawrence, NY; Cape Vincent North, NY**

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<u>Score</u>	<u>Criterion</u>
<b>9</b>	Ecosystem Rarity (ER) Several shallow shoreline bays with dense beds of aquatic vegetation; rare in Jefferson County based on protected nature of bays.
<b>0</b>	Species Vulnerability No endangered, threatened or special concern species are known to reside in the area.
<b>16</b>	Human Use (HU) The St. Lawrence muskellunge fishery, which is dependent on these bays, attracts anglers from throughout New York State and beyond.
<b>16</b>	Population Level (PL) These bays comprise major spawning and nursery areas for muskellunge on the St. Lawrence River, of statewide significance.
<b>1.2</b>	Replaceability (R) Irreplaceable.

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

= **38**

## DESIGNATED HABITAT: ST. LAWRENCE RIVER SHORELINE BAYS

### HABITAT DESCRIPTION:

The St. Lawrence River Shoreline Bays are located on the upper St. Lawrence River, between the Villages of Clayton and Alexandria Bay, in the Towns of Cape Vincent, Clayton, Orleans, and Alexandria, Jefferson County (7.5' Quadrangles: Cape Vincent North, NY; St. Lawrence, NY; Clayton, NY; Thousand Island Park, NY; and Alexandria Bay, NY). The fish and wildlife habitat consists of eight shallow bays along the River's mainland shoreline. From southwest (upriver) to northeast (downriver), these bays are: Peos Bay (20 acres); Millen Bay (35 acres); Rose Bay (30 Acres); Carrier Bay (160 acres); Grass Point Bay (190 acres); Cobb Shoal Bay, also known as Moore Landing Marsh (40 acres); Swan Bay (140 acres); and Point Vivian Marsh (75 acres). The latter four form an almost continuous three and one-half mile reach of productive littoral zone and wetland habitat. All of the bays are generally less than six feet deep (depending on River levels) and are somewhat sheltered from prevailing winds and wave action. Much of the land area surrounding the St. Lawrence River Shoreline Bays is privately owned, and has been developed into seasonal camps, permanent residences, and small craft harbor facilities (resulting in some habitat disturbance). Grass Point State Park and Collins Landing Wildlife Management Area are exceptions to the predominance of private land ownership. These two public areas provide direct access for public use of the resources associated with the habitat.

### FISH AND WILDLIFE VALUES:

The St. Lawrence River Shoreline Bays comprise a fairly extensive area of shallow riverine habitat. Relatively protected embayments supporting extensive beds are not common in Jefferson County. Although these areas have been subject to considerable human disturbance, they continue to be important fish spawning and nursery areas in the St. Lawrence River. All of the bays support productive populations of various warmwater species, including northern pike, brown bullhead, largemouth bass, and various forage fish species. Of special significance, however, is the use of these areas by muskellunge. Studies conducted by NYSDEC and others, in the mid-1980's, revealed that all eight bays serve as spawning and nursery areas for muskellunge. Further research may indicate the other bays in the vicinity are used by muskellunge. Spicer Bay, Blind Bay, and Mullet Creek Bay are potential future additions to the Shoreline Bays habitat, but are more wind-exposed and may fail to support spawning by this species. Muskellunge populations in the St. Lawrence River, which comprise a distinct subspecies from muskellunge populations found elsewhere in New York State, appear to be largely dependent on the habitat found within St. Lawrence River Shoreline Bays. This area, in combination with Grindstone Island Bays, comprise the majority of known muskellunge spawning and nursery habitat in the St. Lawrence. The recreational fishery for this species attracts anglers from throughout New York State, as well as from adjoining states and provinces.

### 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 the St. Lawrence River Shoreline Bays could adversely affect fish and wildlife use of these areas. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides, or insecticides) into any of the bays may result in adverse impacts on fish and wildlife resources. Spills of oil or other hazardous substances are a potentially serious threat to fish populations on the Shoreline Bays area and every effort should be made to prevent such contamination. Significant human disturbances of the area, through dredging, filling, construction of roads, waste disposal, or unlimited motorboat access development, could severely reduce the habitat's value as a spawning and nursery habitat. Such disturbances would be especially detrimental during fish spawning and nursery periods (March through July for most species). Existing areas of natural vegetation bordering the St. Lawrence River Shoreline Bays should be maintained for their value as cover for wildlife, perching sites, and buffer zones.