

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Carlton Island - Featherbed Shoals**

Designated: **August 15, 1993**

County(ies): **Jefferson**

Town(s): **Cape Vincent**

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

<u>Score</u>	<u>Criterion</u>
20	Ecosystem Rarity (ER) An extensive area of riverine littoral zone, with beds of submergent aquatic vegetation; unusual in the Great Lake Plain, but somewhat common in the Eastern Ontario ecological subzone. Geometric mean: $(16 \times 25)^{1/2} = 20$.
0	Species Vulnerability (SV) No endangered, threatened or special concern species are known to reside in the area.
9	Human Use (HU) The most popular walleye fishing area in the Thousand Islands region.
6	Population Level (PL) One of about 5 major concentration areas for migrant waterfowl in the Eastern Ontario Plain ecological subzone. Geometric mean $(4 \times 9)^{1/2} = 6$.
1.2	Replaceability (R) Irreplaceable.

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

= **42**

DESIGNATED HABITAT: CARLETON ISLAND - FEATHERBED SHOALS

HABITAT DESCRIPTION:

Carleton Island - Featherbed Shoals is located in the upper St. Lawrence River, to the west and south of Carleton Island, in the Town of Cape Vincent, Jefferson County (7.5' Quadrangle: Cape Vincent North, NY). The fish and wildlife habitat is an approximate 800 acre, shallow, open water area, containing extensive beds of submergent aquatic vegetation (e.g., wild celery, pondweeds, and muskgrass). Much of this area is less than six feet deep below mean low water (maximum depths are less than 18 feet) depending on water level in the St. Lawrence River. Bottom substrates around Carleton Island are predominantly rocky and sparsely vegetated, except in South Bay, on the southwest corner of the island, where the bottom is soft and silty. Featherbed Shoals, lying between Carleton Island and the mainland, has a predominantly sandy bottom, with rock outcrops that may be exposed during periods of low water (e.g., Roxy Islands). The shoals are somewhat sheltered from prevailing winds, but are subject to occasional rough water conditions. Carleton Island is privately owned, used only by a few seasonal residents and visitors. In contrast, the mainland shore in the vicinity of Carleton Island - Featherbed Shoals has been widely developed with summer cottages, camps, residences, and marinas.

FISH AND WILDLIFE VALUES:

Carleton Island - Featherbed Shoals is one of the most extensive shoals in the St. Lawrence River. Riverine littoral areas such as this are unusual in the Great Lakes Plain ecological region, although they are somewhat common in the upper St. Lawrence. The combination of productive aquatic beds, rocky substrates, good water circulation, and lack of human disturbance in this area provides highly favorable habitat conditions for a variety of fish and wildlife species.

Carleton Island - Featherbed Shoals is one of about 5 major waterfowl concentration areas in the St. Lawrence River. The shoals provide excellent food resources for a variety of migratory bird species, including large numbers of loons, grebes, and diving ducks, such as scaup, canvasback, common goldeneye, and mergansers. Concentrations are especially significant during fall migration (October - November primarily), with over 10,000 ducks observed in the area in some years. The shoals are also regularly used by migratory waterfowl and waterbirds during spring migration (March - April), and to a lesser extent during winter, depending on the amount of ice cover in the area. Aerial winter waterfowl counts for 1986 through 1991 show an average of 1266 ducks with 5319 in peak year. Various species of gulls and terns, including common tern (T), feed in the area during ice out periods, but the extent of this use has not been documented.

Carleton Island - Featherbed Shoals is probably an important fish spawning and nursery area in the St. Lawrence River. Although quantitative data are generally lacking, the shoals provide suitable habitat for various resident warmwater species, including smallmouth bass, yellow perch, rock bass, and pumpkinseed. Other fish species found in the area include walleye and muskellunge, which attract a significant amount of recreational fishing pressure in the area. Nearshore areas west of Carleton Island comprise one of the most heavily fished locations for walleye in the St. Lawrence River. This general area has provided a high quality walleye fishery since the late 1970's, with many trophy size fish harvested. Angling pressure for this species is concentrated during August and September. The abundant warmwater fish populations that exist throughout Carleton Island - Featherbed Shoals provide diverse recreational fishing opportunities, attracting anglers from throughout the Thousand Islands region.

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 Carleton Island - Featherbed Shoals 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 sediments or 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), 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).

Significant boat traffic within the area during fall may also inhibit use of the area by migrant waterfowl. However, development of additional 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. Substantial alteration or fluctuation of water levels in the St. Lawrence River could also affect fish and wildlife use of Carleton Island - Featherbed Shoals, but potential impacts may be beneficial to some species and detrimental to others. Thermal discharges, depending on time of year, may also have variable effects on use of the area by aquatic species and wintering waterfowl. Installation and operation of water intakes could have significant impacts on fish populations, through impingement of juveniles and adults, or entrainment of eggs and larval stages.