

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Crooked Creek Marsh**

Designated: **August 15, 1993 (Jefferson Co.) May 15, 1994 (St. Lawrence Co.)**

County(ies): **Jefferson; St. Lawrence**

Town(s): **Alexandria; Hammond**

7½' Quadrangle(s): **Redwood, NY; Chippewa Bay, NY**

Score **Criterion**

- 25** Ecosystem Rarity (ER)
One of the four largest, undeveloped, coastal streamside wetlands on the St. Lawrence River; rare in the St. Lawrence Plains ecological region.
- 41** Species Vulnerability (SV)
Northern harrier (T) and least bittern (SC) nesting. Common tern (T) feeding area. Additive division: $25 + 25/2 + 16/4 = 41$.
- 7** Human Use (HU)
Waterfowl hunting, recreational sportfishing, and muskrat trapping are of county level significance. Additive division: $4 + 4/2 + 4/4 = 7$.
- 9** Population Level (PL)
This area is a major producer of northern pike and panfish in the St. Lawrence Plains ecological region.
- 1.2** Replaceability (R)
Irreplaceable.
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SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R]

= **98**

DESIGNATED HABITAT: CROOKED CREEK MARSH

HABITAT DESCRIPTION:

Crooked Creek is a tributary of the mid St. Lawrence River, located in the Town of Alexandria, Jefferson County, and the Town of Hammond, St. Lawrence County (7.5' Quadrangles: Chippewa Bay, N.Y.; and Redwood, N.Y.). The fish and wildlife habitat extends inland approximately five miles from the south end of Chippewa Bay, encompassing an approximate 1,250 acre streamside wetland and some adjacent uplands. Crooked Creek is a sizeable warmwater stream, with a broad floodplain occupied by extensive emergent marsh communities (predominantly cattail).

The drainage area of Crooked Creek is relatively small, and little flow is discernible during the summer. Maximum water depths of approximately 10 feet occur in the lower creek channel. Water levels throughout the area are generally continuous with those of the St. Lawrence River. Flushing action in Crooked Creek may be affected by the narrow channel opening under N.Y.S. Route 12. All of Crooked Creek Marsh, including the mouth area at Chippewa Bay, is privately owned, and has been subject to minimal habitat disturbance. Upland areas bordering the marsh consist almost entirely of undeveloped forestland. Human influences on Crooked Creek Marsh are limited to the presence of two road crossings and some seasonal residences.

FISH AND WILDLIFE VALUES:

Crooked Creek Marsh can be distinguished as the least disturbed of four very large, undeveloped, streamside wetland ecosystems along the St. Lawrence River. This extensive marsh has a high degree of interspersion of wetland vegetation, open water, and uplands, creating favorable conditions for many fish and wildlife species. Crooked Creek Marsh is a very productive nesting area for waterfowl and other marsh birds, including pied-billed grebe, American bittern, least bittern (SC), mallard, American black duck, blue-winged teal, wood duck, gadwall, northern harrier (T), Virginia rail, sora, common gallinule, belted kingfisher, marsh wren, red-winged blackbird, and swamp sparrow. Black tern (SC) have been observed in the area, but breeding has not been confirmed. Great blue heron, green-backed heron, black-crowned night heron, and common tern (T) often feed in the area during the breeding season. Osprey (T) have also been observed feeding here, but the extent of use by this species is not well documented. Crooked Creek Marsh is one of about ten principal areas on the St. Lawrence River that are used by concentrations of waterfowl (dabbling ducks, primarily) for feeding and resting during spring and fall migrations. Several hundred ducks have been observed in the marsh in some years. Records exist for Blanding's turtle (T) in the area, but there has been no recent confirmation of this species in Crooked Creek Marsh. Other wildlife species inhabiting the area include white-tailed deer, mink, raccoon, beaver, muskrat, various frogs, mudpuppy, northern water snake, snapping turtle, and painted turtle.

Extensive beds of submergent and emergent aquatic vegetation in Crooked Creek Marsh serve as valuable fish spawning and nursery habitats. The area is used extensively for spawning by a variety of warmwater fish species. Crooked Creek is considered one of the most productive fisheries habitats along the St. Lawrence River, especially for northern pike, brown bullhead, largemouth bass, white sucker, redfin pickerel, and a variety of panfish, such as pumpkinseed, rock bass, and black crappie.

The abundance and diversity of fish and wildlife species in Crooked Creek Marsh provide potential opportunities for various human uses of the area. Road crossings provide sufficient access to support considerable recreational fishing pressure in the area, especially for black crappie and bullhead, attracting anglers from throughout the Thousand Islands region of New York. Fisheries production in Crooked Creek Marsh also contributes significantly to the year-round recreational fishing activity in Chippewa Bay. In

addition, the marsh is a significant waterfowl hunting and muskrat trapping area for residents from Jefferson and St. Lawrence Counties.

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 or increase water levels, alter flows, or increase water level fluctuations in Crooked Creek Marsh could adversely affect a variety of fish and wildlife species. 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. Spills of oil or other hazardous substances are a potentially serious threat to fish and wildlife in Crooked Creek Marsh, and every effort should be made to prevent such contamination.

Elimination of wetland habitats, or significant human encroachment into the area, through dredging, filling, construction of roads, or motorboat access development, could severely reduce its value to fish and wildlife. Channelization would reduce stream channel diversity, and result in a direct loss of valuable habitat area. However, habitat management activities may be designed to maintain or enhance populations of certain fish or wildlife species. Any significant disturbance of Crooked Creek would be especially detrimental during fish spawning and nursery periods (March - July for most warmwater species) and wildlife breeding seasons (April - July for most species). Barriers to fish migration in the creek, whether physical or chemical, could have significant impacts on fish populations within the marsh, and in Chippewa Bay. Existing areas of natural vegetation bordering Crooked Creek Marsh should be maintained for their value as cover for wildlife, and as buffer zones from human disturbance.