

## COASTAL FISH & WILDLIFE HABITAT RATING FORM

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Name of Area: **Buckhorn Island Wetlands**

Designated: **October 15, 1987**

County: **Erie**

Town(s): **Grand Island**

7½' Quadrangle(s): **Tonawanda West, NY; Niagara Falls, ONT-NY**

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<u>Score</u>	<u>Criterion</u>
<b>25</b>	Ecosystem Rarity (ER) This is the largest coastal wetland ecosystem in western New York State, of regional significance.
<b>0</b>	Species Vulnerability (SV) Common Terns (T) feed in the area, but importance to this species is not adequately documented.
<b>0</b>	Human Use (HU) Used for recreational fishing, of local significance.
<b>9</b>	Population Level (PL) Concentrations of northern pike, muskellunge and several migratory bird species are unusual in the Great Lakes ecological region.
<b>1.2</b>	Replaceability (R) Irreplaceable.

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

= **41**

## **DESIGNATED HABITAT: BUCKHORN ISLAND WETLANDS**

### **LOCATION AND DESCRIPTION OF HABITAT:**

Buckhorn Island Wetlands is located in Buckhorn Island State Park, at the northern end of the Town of Grand Island, Erie County (7.5' Quadrangles: Niagara Falls, N.Y.; and Tonawanda West, N.Y.). This approximate 500 acre fish and wildlife habitat is comprised primarily of emergent marshes and deciduous forested wetlands associated with Burnt Ship Creek and Woods Creek. Burnt Ship Creek is a very shallow backwater channel of the Niagara River, bordered by a dense stand of cattail. In recent years, there has been increased growth of marsh vegetation in the creek, constricting the size of the open water sections. Woods Creek, the largest tributary stream on Grand Island, is a relatively broad, deep channel, with an intermittent flow. The creek is bordered by a broad area of sedges, rushes, and grasses, and appears to have been dredged or channelized in the past. Also included in the habitat is a relatively large, shallow shoal area (generally less than 6 feet deep below mean low water) containing beds of submergent aquatic vegetation, between Burnt Ship Creek and Navy Island. Water levels in the Buckhorn Island Wetlands are largely determined by the level of the Niagara River, which is subject to rapid fluctuations caused by downstream water withdrawals for hydroelectric power and industrial uses. Habitat disturbances in the area are generally limited to the Interstate Route 190 and transmission line crossings of Burnt Ship Creek, and use of the area by local residents for hiking and fishing. Most of the land area surrounding Buckhorn Island Wetlands consists of undeveloped forestland and fields.

### **FISH AND WILDLIFE VALUES:**

The Buckhorn Island Wetlands area comprises the largest coastal wetland complex in western New York. The habitat includes the only undeveloped marsh of any large extent remaining on the Niagara River, and a major riverine littoral zone. This area provides valuable habitat for a variety of fish and wildlife species, particularly those that are characteristic of Great Lakes coastal marshes. The wetlands serve as feeding, resting, and breeding areas for ducks, herons, coots, moorhens, and rails. Probable or confirmed breeding bird species include pied-billed grebe, green-backed heron, mallard, black duck, wood duck, American wigeon, belted kingfisher, marsh wren, red-winged blackbird, and swamp sparrow. Various other species may be adversely affected or excluded from the area by fluctuating water levels in the marsh. Common terns (T), which nest nearby, are regularly seen feeding in Burnt Ship Creek and Woods Creek, but the extent of their use has not been documented. During spring and fall migrations (March - April, and October - November, respectively), considerable numbers of waterfowl also occur in the area. Other wildlife species found in the Buckhorn Island Wetlands include muskrat, mink, raccoon, and white-tailed deer. Hunting is not allowed within any part of Buckhorn Island State Park. The area does receive limited use for birdwatching and informal nature study activities. Woods Creek, and to a lesser extent, Burnt Ship Creek, provide extensive and valuable littoral areas used by warmwater fishes of the Niagara River. Studies of various Grand Island tributaries during the mid-1970's indicated that Woods Creek contained significant concentrations of spawning northern pike from February through April, with many remaining in the creek until July. At that time, it was estimated that approximately 800 pike entered Woods Creek to spawn, the largest documented concentration of this species in the Niagara River. Also present in the stream was a significant proportion of the one-year old muskellunge caught during the study, suggesting that Woods Creek may be an important nursery area for this species. As a result of sedimentation and encroachment of marsh vegetation, habitat conditions in Burnt Ship Creek are less favorable for northern pike and muskellunge. However, studies during the mid-1970's indicated that the littoral area between Burnt Ship Creek and Navy Island was one of two principal spawning grounds in the upper Niagara River. Most spawning by this species occurred during May and June, when water temperatures were 16-18 C, in heavily vegetated areas, 3-6 feet deep, with an appreciable current. This area is also one of the most productive spawning areas in the river for smallmouth bass. Both creeks support concentrations of other warmwater fish species, including yellow perch, black crappie, bullhead, rock bass, white sucker, and carp. Fishing pressure in Buckhorn Island

Wetlands is only of local significance, since other reaches of the Niagara River offer greater opportunities for these and more sought-after species, including rainbow trout and coho salmon.

## **IMPACT ASSESSMENT:**

A **habitat impairment test** must be met for 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** that must be met 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 degrades water quality, increases temperature or turbidity, reduces flows, or increases water level fluctuations in the Buckhorn Island Wetlands would adversely affect many fish and wildlife species. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants would result in adverse impacts on the fish and wildlife resources of the area.

Elimination of wetland vegetation, including submergent beds, through dredging, filling, or bulkheading, would result in a direct loss of valuable habitat area. However, habitat management activities, including water level management, may be designed to maintain or enhance populations of certain species of fish or wildlife. Barriers to fish migration in Woods Creek, whether physical or chemical, could have a significant effect on the fish populations of the area, as well as in the Niagara River. Any disturbance of littoral areas between February and July, when northern pike and muskellunge are in the area, would be especially detrimental. Development of motorboat access to the Niagara River from Buckhorn Island State Park would significantly increase human disturbance of the habitat, reducing its potential value to various fish and wildlife species. Existing woodlands bordering the Buckhorn Island Wetlands should be maintained for their value as roosts, breeding habitats, perch sites, and buffer zones for a variety of wildlife species.