

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Buckhorn Island Tern Colony**

Designated: **October 15, 1987**

County: **Erie, Niagara**

Town(s): **Grand Island, Niagara Falls**

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

<u>Score</u>	<u>Criterion</u>
0	Ecosystem Rarity (ER) The habitat consists of several man-made structures within the Niagara River, not a rare ecosystem type.
25	Species Vulnerability (SV) Common Tern (T) nesting area.
0	Human Use (HU) No significant fish or wildlife related human uses of the area.
9	Population Level (PL) Only one of 3 concentrations of nesting common terns in western New York, of regional significance.
0.8	Replaceability (R) Techniques for replacement allow reasonable likelihood for success.

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

= **27**

DESIGNATED HABITAT: BUCKHORN ISLAND TERN COLONY

LOCATION AND DESCRIPTION OF HABITAT:

Buckhorn Island Tern Colony is located at the northern tip of Grand Island, in the Town of Grand Island, Erie County, and the City of Niagara Falls, Niagara County (7.5' Quadrangle: Niagara Falls, Ont.-N.Y.). The fish and wildlife habitat consists of several man-made structures located within the Tonawanda Channel of the Niagara River. These are: an approximate one-quarter mile long rock and boulder dike, designed to divert river water toward the intakes of the Robert Moses hydroelectric power plant; and two transmission tower footings constructed of steel sheet piling and rock fill material. These structures are isolated from the mainland, and have a generally flat, gravelly, surface, with a sparse cover of herbaceous vegetation, scattered shrubs, and small trees. Buckhorn Island Tern Colony is located just offshore from undeveloped Buckhorn Island State Park.

FISH AND WILDLIFE VALUES:

The Buckhorn Island Tern Colony encompasses a small group of man-made channel structures that do not represent an unusual ecosystem type within the Niagara River. However, these structures provide valuable habitats for certain species of wildlife. Since at least the early 1970's, these structures have served as a major nesting site for common terns (T), ring-billed gulls, and herring gulls. In 1983, approximately 120 pairs of common terns, 6,500 pairs of ring-billed gulls and 30 pairs of herring gulls nested in the area. Estimates are not available for most previous years, but the number of common tern nests is known to have varied from as few as 5 in 1975 to as many as 334 in 1972. In 1986 and 1987, respectively, 119 and 96 pairs of common terns nested in this colony. This is one of only 3 active gull and tern colonies in western New York, and at times is the largest in the area. A critical feature of these river structures is their isolation from mammalian predators. There are no significant human use activities associated with the Buckhorn Island Tern Colony.

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.

Bird species nesting on man-made structures are highly vulnerable to disturbance from mid-April through July. Significant human activity (e.g. fishing, boat landing, or maintenance) on or around occupied structures could eliminate the Buckhorn Island Tern Colony, and must be minimized during this period. Annual or permanent posting of the area should be provided to help protect the nesting bird species. Habitat management activities, such as manipulation of surface substrates, control of gull predation, and establishment of additional nesting colonies in the vicinity, may be desirable or necessary in the future to ensure the survival of the common tern population at Buckhorn Island.