

## COASTAL FISH & WILDLIFE HABITAT RATING FORM

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Name of Area: **North Buffalo Harbor**

Designated: **October 15, 1987**

County: **Erie**

Town(s): **Buffalo**

7½' Quadrangle(s): **Buffalo NW, NY**

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<u>Score</u>	<u>Criterion</u>
<b>0</b>	Ecosystem Rarity (ER) Open lake and river channel, heavily disturbed by development; not a rare ecosystem type.
<b>25</b>	Species Vulnerability (SV) Common Tern (T) nesting and feeding areas.
<b>9</b>	Human Use (HU) One of the most heavily used recreational fishing areas in the region.
<b>9</b>	Population Level (PL) Concentrations of wintering waterfowl and nesting terns unusual in the Great Lakes ecological region.
<b>1.0</b>	Replaceability (R) Uncertain of ability to replace.

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

= **43**

## **DESIGNATED HABITAT: NORTH BUFFALO HARBOR**

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

North Buffalo Harbor is located in the northeast corner of Lake Erie, at the head of the Niagara River, in the City of Buffalo, Erie County (7.5' Quadrangle: Buffalo NW, N.Y.). The fish and wildlife habitat is an approximate 800 acre area of open water within the lake and upper river channel, extending roughly from the mouth of the Buffalo River to the Peace Bridge. Water depths vary from less than 6 feet over several small reefs to over 20 feet below mean low water. The U.S. Army Corps of Engineers maintains several breakwaters within this area, including: Bird Island Pier, a one and one-half mile long stone dike which parallels the shoreline and protects the Black Rock Canal; Donnelly's Wall, a half-mile long concrete wall and lighthouse located northwest of the Buffalo River mouth; and, the North End Light Breakwater, a 500 foot long concrete wall located due west of the Buffalo River. Also located in North Buffalo Harbor are the water supply intakes for the City of Buffalo and Erie County. The North Buffalo Harbor fish and wildlife habitat is bordered to the east by the Black Rock Canal, with the adjacent land area heavily developed for urban residential, commercial, industrial, and recreational uses. Immediately west of the area are the Canadian waters of Lake Erie.

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

North Buffalo Harbor is generally representative of an older urban waterfront environment. Fish and wildlife habitats in the harbor area have been lost or degraded as a result of land development, dredging, storm protection projects, discharges of domestic and industrial wastes, and inflow of polluted upland runoff. Nonetheless, North Buffalo Harbor supports some valuable fish and wildlife resources.

One of only 3 major nesting concentrations of gulls and terns in western New York State occurs in North Buffalo Harbor. Donnelly's Wall and the North End Light Breakwater have served as nesting sites for common terns (T) since at least the 1940's, and for ring-billed gulls and herring gulls since at least 1964. In 1983, there were approximately 420 tern nests, 1000 ring-billed gull nests, and 100 herring gull nests among these two locations. A third colony, containing over 60 common tern nests, was also found in 1983, on an abandoned lighthouse near Middle Reefs (Reef Lighthouse). In 1986 and 1987, respectively, there were 154 pairs and 278 pairs of common terns at the Donnelly's Wall colony, 275 pairs and 176 pairs of common terns at the North End Light Breakwater colony and 60 pairs and 51 pairs of common terns at the Reef Lighthouse colony. The concrete surfaces of these structures have deteriorated, so that crevices, cracks, and depressions provide a substrate for nests of these species. A sand and gravel bar located at the north end of Donnelly's Wall also provides suitable nesting habitat. A critical feature of these harbor structures is their isolation from mammalian predators.

The open waters of North Buffalo Harbor are important feeding areas for the tern population nesting in this area, and for some of the largest concentrations of wintering waterfowl in the Lake Erie coastal region. Mid-winter aerial surveys of waterfowl abundance for the ten-year period 1976-1985 indicate average concentrations of approximately 6,500 birds in the harbor each year (14,120 in peak year), including approximately 5,100 common and red-breasted mergansers (13,025 in peak year), 750 scaup (4,210 in peak year), and 500 common goldeneye (2,000 in peak year), along with lesser numbers of canvasback, black duck, and mallard. Waterfowl use of the area during winter is influenced by the extent of ice cover each year; a large part of this area is usually open since it is located below the Lake Erie ice boom. Concentrations of many waterfowl species, along with loons, grebes, gulls, and terns, occur in North Buffalo Harbor during spring and fall migrations (March-April and October-November, respectively). However, waterfowl hunting is not allowed within this urban area.

North Buffalo Harbor supports a major urban fishery, of regional significance. Although no critical

spawning or nursery areas have been documented in the area, a relatively diverse and productive fish community attracts recreational anglers from throughout the Buffalo metropolitan area. Predominant fish species occurring in the harbor include rock bass, white bass, smallmouth bass, yellow perch, walleye, northern pike, muskellunge, brown trout, rainbow trout, and coho salmon. Among the most popular fishing spots are near Donnelly's Wall, and the "fish market", located just outside of the southern portion of Bird Island Pier. Boat access to the area is available at several locations around Buffalo Harbor, and the Army Corps of Engineers and NYSDEC are currently renovating the Bird Island Pier to provide safe shore fishing opportunities.

#### **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 substantially degrades water quality in North Buffalo Harbor would affect the biological productivity of this area. Important species of fish and wildlife could be adversely affected by water pollution, such as chemical contamination (including food chain effects), oil spills, excessive turbidity or sedimentation, and waste disposal. Continued efforts should be made to improve water quality in the harbor, which is primarily dependent upon controlling discharges from combined sewer overflows, industrial point sources, and ships. Oil and other hazardous substance spills are an especially significant threat to North Buffalo Harbor because of its location at the eastern end of Lake Erie, downwind of prevailing winds. Excavation of new navigation channels should be minimized, and maintenance dredging activities should be scheduled in late fall or winter to minimize potential impacts on most aquatic organisms. Any contaminated dredge spoils should be deposited in upland containment areas. Thermal discharges, depending on time of year, would have variable effects on use of the area by aquatic species and wintering waterfowl. Installation and operation of water intakes could have a significant impact on fish populations, through impingement of juveniles and adults, or entrainment of eggs and larval stages. Bird species nesting on man-made structures in North Buffalo Harbor are highly vulnerable to disturbance from mid-April through July. Significant human activity (e.g., fishing, boating, or maintenance) on or around occupied sites could eliminate the common tern colonies, and should be minimized during this period. Annual or permanent posting of nesting areas 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 within the harbor, may be desirable or necessary in the future to ensure the survival of the common tern in North Buffalo Harbor.