COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Small Boat Harbor**

Designated: **October 15, 1987**

County: **Erie**

Town(s): **Buffalo**

7½' Quadrangle(s): **Buffalo SE, NY**

Score	Criterion
12	Ecosystem Rarity (ER) Relatively large, sheltered bay with extensive aquatic beds; unusual on Lake Erie, but rarity reduced by human disturbance. Geometric mean: $(9 \times 16)^{½}$
0	Species Vulnerability (SV) No endangered, threatened or special concern species reside in the area.
9	Human Use (HU) One of the most popular recreational fishing and birdwatching areas in the Buffalo metropolitan region.
4	Population Level (PL) Concentrations of many warmwater fish species and waterfowl are unusual in Erie County's coastal area.
1.0	Replaceability (R) Difficult to replace; cost is probably prohibitive.

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

= **25**

DESIGNATED HABITAT: SMALL BOAT HARBOR

LOCATION AND DESCRIPTION OF HABITAT:

The Small Boat Harbor is located on the shoreline of Lake Erie in City of Buffalo (approximately three miles south of downtown), Erie County (7.5' Quadrangle: Buffalo, SE, N.Y.). The fish and wildlife habitat is an approximate 165 acre, shallow (generally less than 12 feet deep below mean low water), embayment of Lake Erie. This area is sheltered from prevailing winds and wave action by a two mile long rock breakwall, enhancing sediment deposition and growth of submerged aquatic macrophytes, such as water milfoil, wild celery, and pondweeds. Substrates vary from a mixture of sand, gravel, and cobble, in some nearshore areas, to a dark brown gelatinous type sediment (gyttja). Most of the Small Boat Harbor has been subjected to considerable human disturbance, which has played a major role in the development of existing habitat conditions. The harbor is bordered on three sides by rip-rap, concrete bulkheads, and gravel-cobble beach; the fourth side (westerly) is open to the Outer Harbor, with an approximate 30 foot deep dredged navigation channel. Heavily used small craft harbor facilities, with docks, launching ramps, and protective jetties, exist in the center of this area.

FISH AND WILDLIFE VALUES:

The Small Boat Harbor is the only sizable shallow water embayment on Lake Erie in Erie County. Despite human disturbances, it is one of the most important fish and wildlife habitat areas in the Buffalo metropolitan region, because it provides substantial protection from wave action for fish, wildlife, and aquatic vegetation. Consequently, the harbor supports a highly productive and diverse littoral community, with concentrations of many fish and wildlife species occurring in the area.

Studies of the Small Boat Harbor in 1981 demonstrated that this was a diverse and productive fisheries habitat. The major adult fishes found in the area were pumpkinseed, yellow perch, and brown bullhead, along with largemouth bass, muskellunge, carp, and freshwater drum. Icthyoplankton sampling revealed substantial reproduction by centrarchids, shiners, and yellow perch. Carp and drum may also enter the area to spawn. By mid-summer, the Small Boat Harbor is ideal for centrarchids and bullheads as macrophytes fill the embayment. The Small Boat Harbor is the largest, most obvious nursery area for numerous harbor and lake species on the Erie County shoreline. In addition, the harbor supports a productive macrobenthic community, dominated by snails and clams. Submerged, rooted macrophytes and their associated invertebrates and fish provide valuable food resources for many species of waterfowl and other migratory birds. The Small Boat Harbor attracts concentrations of these birds during spring and fall migrations (March-April and September-November, respectively), with some remaining until the harbor freezes over in early to mid-winter. The most abundant birds observed here during these periods are the diving ducks, including canvasback, scaups, mergansers, common goldeneye, and scoters, along with mallard, black duck, Canada goose, loons, grebes, and gulls. Hundreds of these birds are regularly found in the area during late fall, with the greatest numbers occurring when open waters on Lake Erie are rough. Prior to ice-up, the Small Boat Harbor serves as a refuge and feeding area for some of the larger concentrations of waterfowl that occur in North Buffalo Harbor. During the summer months, ring-billed gull, herring gull, and common tern (T) may feed in the area, but the extent of their use has not been documented.

The abundant fish and wildlife populations in the Small Boat Harbor attract a considerable amount of human use of the area. The harbor provides high quality recreational fishing opportunities throughout the year. Anglers from throughout the Buffalo metropolitan area are attracted to the diverse warmwater fisheries, and ice fishing is especially popular. The concentrations of birds which utilize the Small Boat Harbor, and the availability of good public access and vantage points, makes this a popular birdwatching site in Erie County during waterfowl migration periods and in early winter.

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:
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> - destroy the habitat; or,
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> - 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 the Small Boat Harbor would affect the biological productivity of this area. Important species of fish and wildlife will be adversely affected by water pollution, such as chemical contamination (including food chain effects), oil spills, excessive turbidity of sedimentation, and waste disposal. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including nutrient loads) would result in adverse impacts on fish and wildlife populations. Spills of oil or other hazardous substances are an especially significant threat to waterfowl concentrations in the Small Boat Harbor. Because of the year-round fish and wildlife use of the area, maintenance dredging or other bottom disturbance at any time of the year would affect some species; such activities should be minimized, and when unavoidable, be completed in as short a time period as possible. Harbor dredging should be scheduled in late summer or fall to minimize potential impacts on most aquatic organisms. Temporary habitat disturbances would be most detrimental during fish spawning and nursery periods (April-July for most warmwater species), and any contaminated dredge spoils should be deposited in upland containment areas. Any permanent alteration or loss of productive littoral areas would reduce the value of the Small Boat Harbor as a fish and wildlife habitat. However, the fact that existing conditions in the area are largely the result of human activities suggest that considerable allowance for construction and maintenance of harbor structures is appropriate. Installation of breakwalls or jetties should not cause significant habitat loss unless they preclude fisheries access to a larger area, or involve substantial filling of shallow water areas. On the other hand, filling of the area for waste disposal, or conversion to non-water dependent upland uses would be an unnecessary loss of valuable aquatic habitat. Thermal discharges, depending on time of year, would have variable effects on use of the area by aquatic species and wintering water-fowl. 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. Public access to this area should be maintained or enhanced to ensure that adequate opportunities for compatible human uses of the fish and wildlife resources are available.