

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Strawberry Island - Motor Island Shallows**

Designated: **October 15, 1987**

County: **Erie**

Town(s): **Tonawanda, Grand Island**

7½' Quadrangle(s): **Buffalo NW, NY**

<u>Score</u>	<u>Criterion</u>
25	Ecosystem Rarity (ER) This is the largest area of riverine littoral zone and wetland in the Niagara River, a rare ecosystem type in the Great Lakes Plain ecological region.
0	Species Vulnerability (SV) No endangered, threatened or special concern species reside in the area.
9	Human Use (HU) Recreational uses (i.e., waterfowl hunting and fishing) are important to residents of the Niagara region of New York and adjoining portions of Canada.
20	Population Level (PL) An important area used by one of the largest concentrations of wintering waterfowl in the northeastern US; also a major muskellunge spawning area in the Great Lakes region. Geometric mean: $(16 \times 25)^{1/2}$
1.2	Replaceability (R) Irreplaceable

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

= **65**

DESIGNATED HABITAT: STRAWBERRY ISLAND - MOTOR ISLAND SHALLOWS

LOCATION AND DESCRIPTION OF HABITAT:

Strawberry Island - Motor Island Shallows is located in the upper Niagara River, roughly bounded by Strawberry Island, Motor Island, and the southern tip of Grant Island. This approximate 400 acre area is located in the Town of Grand Island and Tonawanda, Erie County (7.5' Quadrangle: Buffalo, N.W., N.Y.) The fish and wildlife habitat is an extensive shallow shoal area (generally less than 6 feet deep below mean low water), containing beds of submergent aquatic vegetation (e.g., wild celery), and patches of emergent wetland vegetation in shoreline areas. Much of this Island, which appears to be eroding as a result of ice scour, high water levels, and direct removal by dredging. Dredging was responsible for much of the reduction in surface area of the island from approximately 200 acres in 1912 to 40 acres in 1948. Strawberry Island is a horseshoe-shaped island which is now 20 acres in size. There is a stand of native willow trees on the south end and a lagoon and marsh on the north side. The island functions as the geologic dividing point of the east and west branches of the Niagara River. The underwater portion of Strawberry Island - Motor Island Shallows is owned by the N.Y.S. Office of General Services and as of 1987, the upland portion of Strawberry Island is also owned by the State. Most of the adjacent land area on Grand Island is within Beaver Island State Park, which is extensively developed for recreational use.

FISH AND WILDLIFE VALUES:

Strawberry Island - Motor Island Shallows is the largest area of riverine littoral zone in the Niagara River. Areas such as this are rare in the Great Lakes Plain ecological region, and are extremely valuable fish and wildlife habitat.

Strawberry Island - Motor Island Shallows is one of the most important fish spawning areas in the upper Niagara River. Studies during the mid-1970s indicated that this was one of two principal spawning grounds for muskellunge in the river, supporting an estimated annual population of 2-6,000 legal-size (28+ inches) fish. 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 upper Niagara River for smallmouth bass, yellow perch, and various other resident freshwater fish species. Strawberry Island - Motor Island Shallows contains relatively large concentrations of many fish species throughout the year. As a result of the abundant fisheries resources in this area, Strawberry Island - Motor Island Shallows is one of the most popular recreational fishing areas in the upper Niagara River, attracting many anglers from the Buffalo metropolitan area and nearby Canada. A small bay on the north side of Strawberry Island is especially popular year-round, since it offers excellent conditions for ice fishing. Boat access to the area is available from marinas and public boat launches in the vicinity.

Strawberry Island - Motor Island Shallows is part of one of the most important waterfowl wintering areas (November-March) in the northeastern United States, especially for diving ducks. Mid-winter aerial surveys of waterfowl abundance for the ten year period 1976-1985 indicate average concentrations of over 14,000 birds in the upper Niagara River each year (25,371 in peak year), including approximately 8,500 common and red-breasted mergansers (17,470 in peak year), 2,600 common goldeneye (8,520 in peak year), 1,900 canvasbacks (5,000 in peak year), and 1,200 scaup (2,306 in peak year), along with lesser numbers of black duck, mallard, bufflehead and oldsquaw. Strawberry Island - Motor Island Shallows serves as one of the major feeding and resting areas for these birds. The habitat is located in one of the few major wintering areas for canvasbacks in New York State. Waterfowl use of the area during winter each year is influenced in part by the extent of ice cover throughout the region. Concentrations of waterfowl also occur in the area during spring and fall migrations (March-April and October-November, respectively). Consequently this is one of the most popular waterfowl hunting areas in the Buffalo area, especially for diving ducks during the late

season. There was a moratorium on canvasback duck hunting during 1986/1987. Summer use of the area by wildlife is not known to be significant, but common terns (T) may feed in the area, but the extent of their use has not been documented.

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 Strawberry Island - Motor Island Shallows 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. Spills of oil or other hazardous substances are an especially significant threat to waterfowl concentrations in this area. Disturbances of littoral areas or wetland vegetation at any time of year could affect a variety of fish and wildlife species. Dredging, filling, bulkheading, or development of boat launching facilities in this area would adversely affect fish and wildlife in a variety of ways, including direct loss of habitat, and increased human disturbance during fish spawning and nursery periods (April-July for most warmwater species). Temporary habitat disturbances would also be especially detrimental during this period. However, habitat management activities may be necessary to ensure that this productive fish and wildlife area is not destroyed by erosion. Structural measures, if appropriate, should be designed to maintain or enhance the value of Strawberry Island - Motor Island Shallows without adversely affecting existing fish and wildlife resources. 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. Recreational use of Strawberry Island should be controlled to restrict activities that may increase soil erosion.

It should be noted that an easement and pipeline for the Town of Tonawanda's water supply crosses the island. The intake cribs are located just offshore of Strawberry Island. Since this portion of the river is an important water supply source as well as a significant fish and wildlife habitat, it is vital that the water quality in this area remains high.