COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Seneca Shoals**

Designated: **October 15, 1987**

County: **Erie**

Town(s): **Three miles west of Hamburg**

7½' Quadrangle(s): **NOAA Chart # 14822**

Score	**Criterion**
20	Ecosystem Rarity (ER) Large, shallow, offshore shoal area; rare in the Great Lakes Plain ecological region, especially Lake Erie. Geometric mean: $(16 \times 25)^{½}$
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 areas in New York's portion of Lake Erie.
6	Population Level (PL) Concentrations of smallmouth bass and other warmwater species are unusual in New York's Lake Erie waters. Geometric mean: $(4 \times 9)^{½}$
1.0	Replaceability (R) Due to the size of this area, costs for replacement may be prohibitive.

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

= **35**

DESIGNATED HABITAT: SENECA SHOALS

LOCATION AND DESCRIPTION OF HABITAT:

Seneca Shoals is located in the waters of Lake Erie, approximately three miles west of the hamlet of Woodlawn, in the Town of Hamburg, in Erie County (NOAA National Ocean Survey Chart No. 14822). The fish and wildlife habitat is an approximate 400 acre, rocky, underwater ridge. Water depths over the shoals range from approximately 12 to 30 feet. The surrounding waters are up to 50 feet deep, and commercial navigation corridors are located to the north of this area. Seneca Shoals is owned by the New York State Office of General Services.

FISH AND WILDLIFE VALUES:

Seneca Shoals is one of the few relatively large, shallow offshore areas in the New York portion of Lake Erie. The availability of extensive rock, ledge, and cobble substrates away from the heavily scoured shoreline provide favorable spawning habitats for a variety of warmwater fish species. Seneca Shoals is believed to be a major spawning area for populations of smallmouth bass, walleye, yellow perch, rock bass, and other panfish. As a result of the abundant fisheries resources around Seneca Shoals, and its proximity to the Buffalo metropolitan area, this is one of the most popular recreational fishing sites in Lake Erie. Anglers from throughout western New York are attracted to the area. In addition, reproduction of walleye and yellow perch at Seneca Shoals probably contributes significantly to local commercial fisheries for these species, located farther offshore in waters greater than 55 feet deep.

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,
>
> - 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, increases temperature or turbidity, or reduces physical diversity of bottom substrates around Seneca Shoals would affect the fisheries resources of this area. Activities such as dredging, oil and gas drilling, and waste disposal are all potential causes of permanent habitat degradation. Temporary habitat disturbances would be most detrimental during fish spawning and nursery periods (mid-March - July for most warmwater species). Any unavoidable human disturbance of the littoral zone should be scheduled during late summer or fall to minimize potential impacts on fisheries in the area. Thermal discharges, depending on time of year, may also have adverse effects on fish populations, especially walleye. Installation and operation of water intakes near Seneca Shoals could have a significant impact on fish concentrations, through impingement of juveniles and adults, or entrainment of eggs and larval stages.