

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Eighteen Mile Creek - Lake Erie**

Designated: **October 15, 1987**

County: **Erie**

Town(s): **Evans, Hamburg**

7½' Quadrangle(s): **Eden, NY**

<u>Score</u>	<u>Criterion</u>
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25	Ecosystem Rarity (ER) One of te two largest New York State tributaries of Lake Erie; relatively undisturbed streams of this size that provide habitat for lake-based fisheries are rare 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) One of the most popular fishing areas in western New York.
6	Population Level (PL) One of the top 4 salmonid spawning streams among Lake Erie tributaries; geometric mean: $(4 \times 9)^{1/2}$
1.2	Replaceability (R) Irreplaceable.

SIGNIFICANCE VALUE = $[(ER + SV + HU + PL) \times R]$

= **48**

DESIGNATED HABITAT: EIGHTEEN MILE CREEK

LOCATION AND DESCRIPTION OF HABITAT:

Eighteen Mile Creek empties into Lake Erie at the hamlet of Highland-on-the-Lake, on the boundary between the Towns of Hamburg and Evans, Erie County. The fish and wildlife habitat extends approximately five miles from Lake Erie to the confluence of the Main and South Branches of the creek, through the Towns of Hamburg, Evans, and Eden (7.5' Quadrangle: Eden, N.Y.). Eighteen Mile Creek is a large, meandering, warmwater stream, with predominantly rock and gravel substrates. The creek drains approximately 120 square miles of agricultural land, rural residential areas, and forested hills. Eighteen Mile Creek is situated in a steep sided, undeveloped, wooded gorge, characterized by shale cliffs (70-100 feet high) and mature deciduous forest. The lower half-mile of Eighteen Mile Creek is low gradient, occupying a broad, undisturbed, floodplain.

FISH AND WILDLIFE VALUES:

Eighteen Mile Creek is the second largest tributary of Lake Erie in New York State, and there are few comparable streams in the Great Lakes Plain ecological region. Undisturbed tributary streams that provide habitat for major spawning runs by salmonids and other lake-based fish populations are especially important in this region. Eighteen Mile Creek is particularly significant because large concentrations of coho salmon, chinook salmon and brown trout migrate from Lake Erie into the creek each fall, from late August through December (September-November, primarily), when salmonids ascend the streams to spawn (although unsuccessfully in most instances). In addition, steelhead (lake-run rainbow trout) migrate into Eighteen Mile Creek during the fall and between late February and April. Runs of trout and salmon occur beyond the junction of the Main and South Branches of the creek, but population levels are not well developed above this point. These fish populations are the result of an ongoing effort by the NYSDEC to establish a major salmonid fishery in the Great Lakes through stocking. In 1984, approximately 40,000 coho salmon, and 18,000 steelhead were released in Eighteen Mile Creek. Among New York's Lake Erie tributaries, Eighteen Mile Creek ranked third for numbers of salmonids stocked in 1984; the creek was one of only four in the region that received steelhead. Eighteen Mile Creek also supports substantial natural reproduction by smallmouth bass, and has runs of various lake-dwelling species, such as white sucker, carp, freshwater drum, and brown bullhead. Black redhorse (SC) were reported at the mouth of the creek in the 1920's, but this species has not since been confirmed in the area.

Eighteen Mile Creek provides a major salmonid fishery to anglers in the Lake Erie coastal region. Although access is somewhat limited by the surrounding topography, the stream received an estimated 3,800 angler trips during September and October 1982. Smallmouth bass fishing also attracts local anglers to the area in early summer.

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, increases temperature or turbidity, reduces flows, or alters water depths in Eighteen Mile Creek would adversely impact on the fisheries resources of this area. These impacts would be most detrimental during spawning period, and in the spring after salmonids are stocked in the creek. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides, or insecticides) would adversely impact on fish populations. Of particular concern are the potential effects of upstream disturbances, including water withdrawals, impoundments, stream bed disturbances, and effluent discharges. Barriers to fish migration, whether physical or chemical, would have a significant impact on fish populations in the creek. Development of hydroelectric facilities on the creek should only be permitted with run-of-river operations. Existing woodlands bordering Eighteen Mile Creek and its tributaries should be maintained to provide bank cover, soil stabilization, and buffer areas. Development of additional public access to the creek may be desirable to ensure that adequate opportunities

for compatible human uses of the fisheries resources are available. However, installation of breakwalls or jetties to create a "harbor of refuge" could induce substantial development of this unusual natural area, directly resulting in the loss of habitat values.