

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Silver Creek and Walnut Creek**

Designated: **October 15, 1987**

County: **Chautauqua**

Town(s): **Hanover**

7½' Quadrangle(s): **Silver Creek, NY**

<u>Score</u>	<u>Criterion</u>
0	Ecosystem Rarity (ER) One of about 4 major Lake Erie tributary systems in Chautauqua County, but rarity diminished by human disturbance to the channel. Geometric mean: $(0 \times 9)^{1/2}$
0	Species Vulnerability (SV) No endangered, threatened or special concern species are known to reside in the area.
	Human Use (HU)
9	Salmonid fishery attracts anglers from throughout the Lake Erie coastal region.
6	Population Level (PL) One of the top 4 salmonid spawning streams among Lake Erie tributaries; geometric mean $(4 \times 9)^{1/2} = 6$.
1.2	Replaceability (R) Irreplaceable

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

= **18**

DESIGNATED HABITAT: SILVER CREEK AND WALNUT CREEK

LOCATION AND DESCRIPTION OF HABITAT:

Silver Creek and Walnut Creek are located in the Village of Silver Creek, Town of Hanover, Chautauqua County (7.5' Quadrangle: Silver Creek, NY). The fish and wildlife habitat extends one and one-half miles upstream from the mouth of Silver Creek, including both Silver and Walnut Creeks. Walnut Creek is a tributary to Silver Creek, flowing into Silver Creek one quarter mile from lake Erie. The creeks are relatively small, medium-gradient streams with alternating rocky, gravel and shale substrates. The land area bordering the creeks is primarily residential. The banks are generally vegetated with shrubs and some trees which provide important shaded areas. There is some human disturbance of the creek from residential areas, abandoned shoreline structures associated with former commercial or industrial uses and road crossings, but the water quality remains high.

FISH AND WILDLIFE VALUES:

Silver Creek and Walnut Creek are two of only a few tributary streams to Lake Erie in Chautauqua County where there is potential for runs of salmonids from Lake Erie. Rainbow trout, including steelhead, and brown trout, coho salmon and chinook salmon from Lake Erie migrate into streams like Silver and Walnut Creeks to spawn (although unsuccessfully in most cases). Although the fishery for these species is sustained through stocking, the fish become concentrated in the fall and spring in the lower reaches of these streams and nearby in the lake. Silver and Walnut Creeks are not stocked, but still experience modest salmonid runs.

Local reports of successful spawning of at least rainbow trout exist, but the extent and importance of potential natural reproduction of this species remains unconfirmed.

Significant concentrations of minnow species occur in the creek, particularly in the lower reaches where water depth, water quality and protection from lake storms provides ideal habitat. Minnow species concentrating in this habitat include emerald shiner, common shinner, spottail shiner and golden shiner. Concentrations of these species are sufficient to support a bait fishery of importance in Chautauqua and Erie Counties.

Silver Creek and Walnut Creek provide an important salmonid fishery to anglers in Chautauqua and Erie Counties. Access to the creeks is generally at road crossings and road ends.

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 activities that substantially degrade water quality, increase temperature or turbidity, reduce flows or alter water depths in Silver Creek and Walnut Creek would adversely affect the fisheries resources of this area. These impacts would be most detrimental during spawning periods in early spring and late fall. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides or insecticides) would result in adverse impacts on fish populations. Barriers to fish migration, whether physical or chemical, would have a significant impact on fish populations in the creek. Existing trees and shrubs bordering Silver and Walnut Creeks should be maintained to provide bank cover, soil stabilization, and buffer areas. Development of appropriate public access to the creek may be desirable to ensure that adequate opportunities for compatible human uses of the fisheries resources are available. Although this habitat supports an important bait fishery, this use should not be encouraged since there is some potential for successful reproduction of trout to occur here.