

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Canadaway Creek**

Designated: **October 15, 1987**

County: **Chautauqua**

Town(s): **Dunkirk, Pomfret**

7½' Quadrangle(s): **Dunkirk, NY**

<u>Score</u>	<u>Criterion</u>
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16	Ecosystem Rarity (ER) One of the major Chautauqua County tributaries to Lake Erie; relatively undisturbed streams of this size are rare in the ecological subregion of New York.
0	Species Vulnerability (SV) No endangered, threatened or special concern species are known to reside in the area.
9	Human Use (HU) Recreational use (salmonid fishing and birdwatching) attract visitors from throughout western New York.
6	Population Level (PL) One of the top 4 salmonid spawning streams among Lake Erie tributaries; geometric mean $(4 \times 9)^{1/2} = 6$.
1.2	Replaceability (R) Irreplaceable.

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

= **37.0**

DESIGNATED HABITAT: CANADAWAY CREEK

LOCATION AND DESCRIPTION OF HABITAT:

Canadaway Creek flows into Lake Erie approximately two miles southwest of Dunkirk Harbor, in the Towns of Dunkirk and Pomfret, Chautauqua County (7.5' Quadrangle: Dunkirk, N.Y.). The fish and wildlife habitat extends approximately six miles from Lake Erie to Laona Falls, east of the Village of Fredonia. Canadaway Creek is a relatively large, medium gradient, warmwater stream, with a gravel and shale substrate. The creek drains approximately 40 square miles of residential land, agricultural land and forests. Much of the land area bordering Canadaway Creek is deciduous forest, including the Nature Conservancy's Canadaway Creek Nature Sanctuary, located near the mouth of Canadaway Creek. Habitat disturbances in the area include road crossings, sewage treatment plant discharges, and moderate density residential development in adjacent areas.

FISH AND WILDLIFE VALUES:

Canadaway Creek is one of the major tributaries of Lake Erie in Chautauqua County. Relatively undisturbed stream ecosystems that provide habitat for major salmonid spawning runs are rare in this region. The creek is especially significant because concentrations of coho and 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 trout (lake-run rainbow trout) migrate into Canadaway Creek during the fall and between late February and April. 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 38,000 steelhead were stocked in Canadaway Creek; in 1983, 18,000 coho salmon were released here. Among New York's Lake Erie tributaries, Canadaway Creek is one of the top four for number of salmonids stocked in those years.

Canadaway Creek provides an important salmonid fishery to anglers in the the Lake Erie coastal region. The presence of trout and salmon populations, along with public fishing access at several locations between the mouth and Laona Falls, provide one of the best locations in western New York for anglers. Canadaway Creek Nature Sanctuary also provides residents in the region with the opportunity to enjoy many different species of wildlife. This area is a major stopover for migratory birds in the fall and spring, and over 140 species have been identified at the sanctuary.

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 Canadaway Creek will adversely impact the salmonid fisheries. These impacts would be most detrimental during spawning periods, and in the spring when salmonids are stocked in the creek. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides, or insecticides) could adversely impact fish populations. Of particular concern are the potential effects of upstream disturbances, including water withdrawals, impoundments, stream bed disturbances, and effluent discharges. Development of hydroelectric facilities on the creek should only be permitted with run-of-river operations. Barriers to fish migration, whether physical or chemical, would have a significant impact on fish populations in the creek. Existing woodlands bordering Canadaway 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.