COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Sage Creek Marsh**

Designated: **October 15, 1987**

County: **Oswego**

Town(s): **Mexico**

7½' Quadrangle(s): **Pulaski, NY**

Score	Criterion
9	Ecosystem Rarity (ER) Relatively small, undisturbed, flood pond wetland dominated by nonpersistent emergents; unusual in Oswego County.
16	Species Vulnerability (SV) Black tern (SC) nesting.
0	Human Use (HU) Recreational fishing area for local residents, used as a birdwatching area by visitors to Derby Hill; neither use is significant at the county level.
0	Population Level (PL) No unusual concentrations of any fish or wildlife species occur in the area.
1.2	Replaceability (R) Irreplaceable

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

= **30**

DESIGNATED HABITAT: SAGE CREEK MARSH

LOCATION AND DESCRIPTION OF HABITAT:

Sage Creek Marsh is located in the Town of Mexico, Oswego County, (7.5' Quadrangle: Pulaski, N.Y.). The fish and wildlife habitat is an approximate 35 acre streamside wetland and flood pond system that has developed where Sage Creek empties into Lake Ontario. Vegetation in the area is dominated by narrow-leaved and broad-leaved nonpersistent emergents (e.g., burreed, pickerelweed, and arrow-arum); there are also areas of submergent aquatic beds and wet meadows. Above the marsh, Sage Creek is a small, medium gradient, intermittent stream. Much of the land area bordering Sage Creek Marsh is undeveloped forest and open field; there is little evidence of human disturbance, except for several seasonal camps and permanent residences on the barrier beach at the mouth of the creek. Sage Creek Marsh is privately owned.

FISH AND WILDLIFE VALUES:

Sage Creek Marsh is one of the few streamside wetlands along Oswego County's coast line that remains in a relatively undisturbed condition. Despite its small size relative to other wetlands around eastern Lake Ontario, this area provides valuable habitats for a variety of fish and wildlife species. Sage Creek Marsh displays the ecological diversity associated with natural coastal wetlands on Lake Ontario. This was one of two areas selected by the U.S. Fish and Wildlife Service for a study on the responses of wetland vegetation to water level variations in the lake.

Extensive beds of aquatic and broad-leaved emergent vegetation in the area serve as productive fish spawning and nursery areas, supporting concentrations of many resident warmwater species, including brown bullhead, white sucker, largemouth bass, and northern pike. Forage fish species found in the area include gizzard shad, golden and common shiner, smelt, cutlips and bluntnose minnows, johnny and fantail darters, pumpkinseed, and mottled sculpin. Studies of Sage Creek Marsh in 1976 documented the presence of at least 17 species of fishes in the area. The fisheries resources in Sage Creek Marsh attract some recreational fishing use by local residents.

Wildlife use of Sage Creek Marsh includes a full complement of characteristic wetland species. Probable or confirmed breeding bird species include green-backed heron, mallard, black duck, wood duck, blue-winged teal, black tern (SC), belted kingfisher, common yellowthroat, red-winged blackbird, and swamp sparrow. The marsh is an excellent waterfowl production area. Furbearers, such as muskrat, mink, and raccoon, are also abundant in the area. Herpetofauna found in Sage Creek Marsh include snapping turtle, northern water snake, common garter snake, bullfrog, green frog, and wood frog. The undisturbed woodlands bordering the wetland are an integral part of the habitat for many of these species. Sage Creek provides limited opportunities for local residents to enjoy waterfowl hunting, birdwatching, and informal nature study. In 1985, the Onondaga Audubon Society purchased a two acre parcel in the area to be developed as a wildlife observation site. In the future, Sage Creek Marsh may receive considerable use by birdwatchers visiting the Derby Hill Bird Observatory, located just east of the wetland.

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 turbidity or sedimentation, reduces flows, or increases water level fluctuations in Sage Creek Marsh would adversely affect a variety of fish and wildlife species. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides, or insecticides), could adversely impact on fish and wildlife resources of the area. Elimination of wetland vegetation, including submergent beds, through dredging, filling, or bulkheading, would result in a direct loss of valuable habitat area. Development of motorboat access to Lake Ontario from Sage Creek would severely reduce the value of this area to fish and wildlife, through habitat impacts, and increased human disturbance during fish spawning and nursery periods (March - July for most warmwater species) and wildlife breeding seasons (April - July for most species). Barriers to fish migration,

whether physical or chemical, would have significant effects on fish populations within the marsh, and in connected waters. Existing areas of natural vegetation bordering Sage Creek Marsh should be maintained for their value as cover for wildlife, perch sites, and buffer zones.