

## COASTAL FISH & WILDLIFE HABITAT RATING FORM

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Name of Area: **Salmon River**

Designated: **October 15, 1987**

County: **Oswego**

Town(s): **Richland, Albion, Orwell**

7½' Quadrangle(s): **Pulaski, NY; Orwell, NY; Richland, NY**

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| <u>Score</u> | <u>Criterion</u>  |
|--------------|---|
| <b>64</b>    | Ecosystem Rarity (ER)<br>The Salmon River is the largest coldwater tributary to the Great Lakes in New York State.  |
| <b>24</b>    | Species Vulnerability (SV)<br>Black tern (SC) and least bittern (SC) nesting.<br>Additive division: 16 + 16/2       |
| <b>25</b>    | Human Use (HU)<br>Salmonid fisheries attract recreational fishermen from throughout the northeastern United States. |
| <b>25</b>    | Population Level (PL)<br>Concentrations of salmonids are among the highest in the northeastern United States.       |
| <b>1.2</b>   | Replaceability (R)<br>Irreplaceable.  |

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

= **166**

## **DESIGNATED HABITAT: SALMON RIVER**

### **LOCATION AND DESCRIPTION OF HABITAT:**

The Salmon River is located just north of Selkirk Shores State Park, on the eastern shore of Lake Ontario, in the Towns of Richland, Albion, and Orwell, Oswego County (7.5' Quadrangles: Pulaski, N.Y.; Richland, N.Y.; and Orwell, N.Y.). The fish and wildlife habitat extends approximately sixteen miles from the river mouth the Altmar Dam (Lower Reservoir), and includes the entire river channel and associated islands and wetlands. The habitat also includes two principal tributaries of the river: Beaverdam Brook, and Orwell Creek. The Salmon River is a very large, medium gradient, coldwater stream, with a predominantly rock and gravel substrate. The river drains approximately 270 square miles of forested headwaters, agricultural lands, and rural residential areas. The lower one and one-half miles of the river are approximately at lake level, forming a wetland embayment over 300 acres in size. Extensive beds of emergent marsh vegetation and submergent aquatic vegetation are interspersed throughout this lower area. Much of the land area bordering the Salmon River is privately owned, except for Selkirk Shores State Park on the south side of the river mouth. There has been considerable shoreline development at the river mouth between Selkirk and Port Ontario, including seasonal and permanent residences, boat launches, and bulkheading. Human recreation disturbance is also heavy in this lower area, while upstream habitat disturbances are generally limited to road crossings, discharges of agricultural runoff, and flow alterations caused by hydroelectric power production.

### **FISH AND WILDLIFE VALUES:**

The Salmon River is the largest coldwater tributary of Lake Ontario, comprising a rare ecosystem type in New York State. This area provides valuable habitats for many species of fish and wildlife. The river is especially significant because large concentrations of coho and chinook salmon and brown trout migrate from Lake Ontario into the river to spawn each fall, from late August through December. In addition, steelhead (lake-run rainbow trout) migrate into the Salmon River during the fall and between late February and April. Generally, most of the salmonid spawning occurs in small tributaries of the Salmon River, of which Beaverdam Brook and Orwell Creek are especially important. The NYSDEC's Salmon River Fish Hatchery, which provides all of the coho and chinook salmon released in New York's Great Lakes waters, is located along Beaverdam Brook near its confluence with the Salmon River. Many of the salmon and trout released in the river return here to spawn when sexually mature, providing a new supply of eggs for the hatchery each year. The salmonid concentrations in the Salmon River are the result of an ongoing effort by the NYSDEC to restore the Great Lakes salmonid fishery through stocking. In 1984, approximately 600,000 chinook salmon, 25,000 coho salmon, and 120,000 steelhead were released in the river. In addition, approximately 75,000 coho salmon were stocked in Beaverdam Brook in 1984. Significant natural reproduction of coho salmon and rainbow trout occurs in the tributaries of the Salmon River, with Orwell Creek being especially well documented. Historically, the Salmon River had the largest Atlantic salmon concentrations of all the tributaries to Lake Ontario.

The mouth of the Salmon River is a very productive warmwater fish spawning and nursery area. Extensive studies of this area in 1976-1977 demonstrated that it supported an unusually diverse and complex fish community. Warmwater fish species found here included smallmouth bass, rock bass, yellow perch, brown bullhead, northern pike, redbfin pickerel, largemouth bass and other panfish. These fish species are generally concentrated in the lower warmwater section of the river, but some (e.g., smallmouth bass) move upriver to spawn. Important forage species present include golden shiner, white sucker, creek chubsucker, and other shiners. Smelt, alewife, and gizzard shad also spawn in the river, and alewife use the river as a nursery area.

The Salmon River and its tributaries provide one of the top salmonid fisheries in the northeastern United States. As of 1975, when stocked salmon first began returning to the river in large numbers, an estimated 22,000 trips to the area were made by fishermen. Out-of-state as well as New York State residents are

attracted to this area due to the river's salmonid fishing opportunities. Recreational fishing for black bass, panfish and smelt in the lower section of the river is also significant; as of 1973, an estimated 126,000 total man-days of angling was expended on the Salmon River.

Beds of emergent and submergent aquatic vegetation in the Salmon River contribute to the maintenance of fish populations in the area, and serve as valuable habitats for wildlife. Marsh areas located along the Salmon River provide high quality breeding and foraging areas for a variety of wetland wildlife species, although human recreation disturbances limit their use. Nonetheless, waterfowl species reported nesting in the area include mallard, black duck and wood duck. Other probable or confirmed breeding bird species along the river include black tern (SC), least bittern (SC), and American bittern. Bird species observed feeding in the area include great blue heron, green-backed heron, black-crowned night heron, Canada goose, osprey (T), and black-bellied plover. Mammal species found in the area include mink, raccoon, river otter, and muskrat. There are no significant human uses of the Salmon River's wildlife resources.

### **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 the Salmon River, Beaverdam Brook, or Orwell Creek, would adversely affect the fish and wildlife resources of this area. These impacts would be especially detrimental during fish spawning and nursery periods (late February - July for most warmwater species and steelhead, and September - May for most salmonids), and wildlife breeding seasons (April - July for most species). Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides, or insecticides) could adversely impact on fish or wildlife species. Of particular concern are the potential effects of upstream disturbances, including water withdrawals, stream bed disturbances, and effluent discharges. Hydroelectric facilities on the creek should only be permitted with run-of-river operations; elimination of man-made fluctuations in river flow could enhance the fisheries resources in this area. Barriers to fish migration, whether physical or chemical, would have significant impacts on fish populations in the river and in Lake Ontario. Disturbance of wetland vegetation, including submergent beds, through dredging, filling, or bulkheading, would result in a direct loss of valuable habitat area. Enhancement of motorboat access to Lake Ontario from this area would reduce its value to fish and wildlife through loss of habitat and increased human disturbance of the habitat. Existing areas of natural vegetation bordering the Salmon River should be maintained to provide bank cover, perch sites, soil stabilization, and buffer zones.