

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Moses-Saunders Tailwaters**

Designated: **May 15, 1994**

County(ies): **St. Lawrence**

Town(s): **Massena**

7½' Quadrangle(s): **Raquette River, NY-ONT**

<u>Score</u>	<u>Criterion</u>
20	Ecosystem Rarity (ER) A relatively large, deep, open water section of river; unusual in the St. Lawrence River, but rarity reduced by habitat alterations. Geometric mean: $(16 \times 25)^{1/2} = 20$
48	Species Vulnerability (SV) Bald eagle (E) wintering and feeding; lake sturgeon (T) occur in the area. Additive division: $36 + 25/2 = 48$.
9	Human Use (HU) One of the most popular birdwatching sites in the Thousand Islands region of New York.
9	Population Level (PL) A major concentration area for migrant and wintering gulls and waterfowl in the St. Lawrence Valley ecological region.
1.2	Replaceability (R) Irreplaceable.

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

= **103**

DESIGNATED HABITAT: MOSES-SAUNDERS TAILWATERS

HABITAT DESCRIPTION:

Moses-Saunders Tailwaters is located in the lower St. Lawrence River, between Barnhart Island and Cornwall Island, in the Town of Massena, St. Lawrence County (7.5' Quadrangles: Cornwall West, ONT-NY; and Raquette River, NY). The fish and wildlife habitat is an approximately 500 acre area of river channel, extending about two miles from the base of Moses-Saunders Power Dam to the St. Lawrence Seaway navigation channel. This area encompasses a relatively deep (up to approximately 50 feet), wide, open water area below the dam, and a narrow waterway (referred to as Polly's Gut) which connects the two main channels of the river. Water discharges from the Moses-Saunders Hydroelectric Plant create considerable eddying and crosscurrents, and cause river elevations to fluctuate over a range of several feet in the tailwater area. Moses-Saunders Tailwaters is situated in an undeveloped, steep-sided, rocky gorge. The largely wooded adjacent land area is located within Robert Moses State Park.

FISH AND WILDLIFE VALUES:

Moses-Saunders Tailwaters is a heavily disturbed segment of the St. Lawrence River, subject to extreme variations in flow as a result of hydroelectric power and navigation developments. Nonetheless, it is a remnant of the lower St. Lawrence River ecosystem (most of which was inundated by the Seaway project), and still supports significant concentrations of certain fish and wildlife species. The presence of the power plant is in large part responsible for these concentrations since the dam acts as an impassable barrier to fish, and the water discharges maintain open water in the area year-round.

Wintering bald eagles have been documented at the Moses-Saunders Tailwaters. As many as 7 eagles have been observed feeding and roosting in the area. Moses-Saunders Tailwaters is a major part of the principal waterfowl wintering area (November - March) in the St. Lawrence Plain ecological region of New York, especially for diving ducks. Mid-winter aerial surveys of waterfowl abundance for the period 1986-1991 indicate average concentrations of over 2,700 birds between Cornwall and Wilson Hill Wildlife Management Area each year (5,519 in peak year), including approximately 2,500 common and red-breasted mergansers (5,247 in peak year), along with lesser numbers of black duck, common goldeneye, mallard, and Canada goose. Moses-Saunders Tailwaters is a major feeding and resting area for these birds. In addition, the largest concentrations of gulls in northern New York are found in association with the hydroelectric station at Moses-Saunders Dam. Concentrations of over one thousand gulls have been observed in Moses-Saunders Tailwaters, including greater black-backed gull, herring gull, and several rare Arctic species, such as Iceland gull, glaucous gull, and ivory gull. Large numbers of waterfowl and gulls start to build up in October and may reach a peak in November or December, with a decrease into January and February. These birds are apparently attracted to the food provided by many live, dead or injured fish that are entrained in the power plant flow or brought to the surface by turbulent river currents. Other species which often feed in or around Moses-Saunders Tailwaters include black-crowned night heron, but the importance of this area to these birds has not been documented. The diversity and abundance of migratory birds which utilize this area make it one of the most popular birdwatching sites in the St. Lawrence River region, especially during fall and early winter. A prime viewing area is the Hawkins Point overlook, located due south of Moses-Saunders Dam, on the opposite shore.

Moses-Saunders Tailwaters probably has limited potential as a fisheries habitat. Due to the lack of shallow littoral areas, the strong turbulent currents, and effects of man's activities, it is unlikely that the tailwaters are used for fish spawning or nursery activities to any great extent. Of particular significance, however, is the documented occurrence of lake sturgeon (T) in this segment of the river. This species may be reproducing in major tributaries of the river (e.g., the Grass, Raquette, and St. Regis Rivers), and Moses-Saunders Tailwaters may serve as a foraging and overwintering area for juvenile and adult sturgeon. Walleye are also

found in this area, but the concentrations present are considered a small remnant of the population which formerly inhabited much of the lower St. Lawrence River. Moses-Saunders Tailwaters receives some recreational fishing use, but this is somewhat limited by the relative inaccessibility of the area.

IMPACT ASSESSMENT:

A **habitat impairment test** must be applied 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** 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.

The effects of upstream water management and regulated discharges on the Moses-Saunders Tailwaters are not well documented, but represent the most significant potential disturbances of the habitat. Fluctuating water levels and flow rates may already be adversely affecting fish spawning, such that increased water diversion or use may have a negligible impact on fisheries habitat in this area. On the other hand, power plant discharges in the lower river may be a primary attraction for the large numbers of migratory birds using the area. Any activity that would substantially degrade water quality in the Moses-Saunders Tailwaters could adversely affect fish and wildlife species using this area. Spills of oil or other hazardous substances in the river could have very serious consequences for fish and wildlife populations using the area. Thermal discharges, depending on time of year, may have variable effects on use of the area by aquatic species. Installation and operation of water intakes in the area could have a significant impact on the lake sturgeon population, through impingement of juveniles and adults, or entrainment of eggs and larval stages. Development of improved fishing access to the area may be desirable, and should have no significant impact on migratory bird populations.