

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Thousand Island Tern Colonies**

Designated: **August 15, 1993**

County(ies): **Jefferson**

Town(s): **Clayton, Orleans**

7½' Quadrangle(s): **Thousand Island Park, NY**

Score **Criterion**

- 0** Ecosystem Rarity (ER)
One artificial rover navigation structure; not a rare ecosystem type. Three small, undisturbed, rocky islands and one small group of islands; not a rare ecosystem type.
- 25** Species Vulnerability (SV)
Common tern (T) nesting.
- 0** Human Use (HU)
No significant fish or wildlife related human uses of the area.
- 9** Population Level (PL)
Collectively, these sites support the only group of breeding common terns in the Eastern Ontario Plain ecological region.
- 0.8** Replaceability (R)
Techniques for replacement allow reasonable likelihood for success; potential replacement sites exist or could be created in the area.

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

= **27**

DESIGNATED HABITAT: THOUSAND ISLAND TERN COLONIES

HABITAT DESCRIPTION:

The Thousand Island Tern Colonies are located along the St. Lawrence Seaway navigation channel, extending from the Town of Clayton to the Town of Alexandria in Jefferson County (7.5' Quadrangles: Thousand Island Park, NY). The fish and wildlife habitat consists of one man-made structure supporting navigation lights, located where shoals occur in close proximity to the Seaway channel and three small rocky islands along with one small group of islands. The specific sites include a small group of islands known as Eagle Wing Group, located approximately one-half mile northwest of the Village of Clayton; Gull Island, located about one mile north of Carrier Bay; Tidd Island, located one mile north of Mason Point; Light Northeast 216, located approximately one-half mile south of Thousand Island Park; and an island known as Southeast Isle of Pines, located just north of Fishers Landing in the Town of Orleans.

The artificial structure is a roughly 25 foot square platform, constructed of concrete, rock, steel and steel piping, with varying amounts of soil, gravel, and vegetation on the surface. The height of the platform is approximately 8-10 feet above the water. All of the St. Lawrence River navigation lights are owned and maintained by the St. Lawrence Seaway Development Corporation, along with many other river structures not included in the habitat.

FISH AND WILDLIFE VALUES:

The Thousand Island Tern Colonies consist of a man-made channel structure and three small islands as well as one small island group that do not represent an unusual ecosystem type. The channel navigation structures have become critical habitat for this regional breeding population of common terns (T), serving as major nesting sites for this species since at least the mid 1970's. There were an estimated 165 and 135 common tern nests among the navigation light, three islands, and one island group in 1990 and 1991, respectively. Population levels vary from year to year, but Tidd Island, Gull Island, and Eagle Wing Group have had consistent historical use, with the Eagle Wing Group having served as a major nesting site for common terns since the 1920's. Eagle Wing Group, Gull Island, and Tidd Island are the three natural island habitats that have the greatest concentrations of nesting common terns in the St. Lawrence River; with 43, 42, and 28 nests in 1991, respectively. Light Northeast 216 had 22 nests in 1991.

A critical feature of the Thousand Island Tern Colonies is their isolation from mammalian predators and human disturbance. However, predation by great horned owls appears to be a serious and long standing problem for the island colonies. Ringed-billed gulls also nest on the islands and may compete for suitable nesting sites. Predation has apparently resulted in very low hatching and fledging success for the island colonies. There are no significant fish or wildlife related human uses of the Lower St. Lawrence River Tern Colonies.

IMPACT ASSESSMENT:

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

Bird species nesting in colonies on man-made structures and islands in the St. Lawrence River are highly vulnerable to disturbance from mid-April through July. Significant human activity (e.g., boat-landing, fishing or maintenance) on or around occupied sites, including Eagle Wing Group, Gull Island, and Tidd Island, could eliminate tern colonies, and should be minimized during this period. Artificially high water during nesting would limit use of the islands. Annual or permanent posting of the structure and the islands should be provided to help protect the nesting bird species. Habitat management activities, such as manipulation of surface substrates, control of avian predation or competition, and establishment of additional nesting colonies in the vicinity, may be desirable or necessary in the future to ensure the survival of common tern populations in the St. Lawrence River. Other navigation structures in the river should be monitored or enhanced for use by common terns, as part of an overall management program for these bird populations. Introduction or attraction of mammalian predators, including pet animals, would also be detrimental to the colonial bird populations at Eagle Wing Group, Gull Island, and Tidd Island.