Appendix E

Significant Coastal Fish and Wildlife Habitats

STATE OF NEW YORK
DEPARTMENT OF STATE
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ALBANY, NY 12231-0001

GEORGE E. PATAKI
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Significant Coastal Fish and Wildlife Habitats

Purpose of the Significant Coastal Fish and Wildlife Habitats Program

Many habitats that are vital to the survival of New York's coastal fish and wildlife resources exist along our state's 3,200 miles of shore. However, as development pressures mount, these habitats are being degraded or lost. In response to public concern about accelerating habitat destruction, a policy aimed at protecting our most important coastal habitats was established in the New York State Waterfront Revitalization and Coastal Resources Act of 1981. The New York Department of State administers this law and is committed to habitat protection so as to preserve the recreational, commercial and ecological benefits derived from our coastal fish and wildlife resources.

Criteria Used to Screen and Identify The Most Significant Coastal Habitats

A habitat is significant if it serves one or more of the following functions:
(a) is essential to the survival of a large portion of a particular fish or wildlife population;
(b) supports populations of species which are endangered, threatened or of special concern;
(c) supports populations having significant commercial, recreational, or educational value; and
(d) exemplifies a habitat type which is not commonly found in the state or in a coastal region.
Also, the significance of certain habitats increases to the extent they could not be replaced if destroyed.

Identification of Significant Habitats

Using the criteria listed above, biologists in the Department of Environmental Conservation developed a quantitative system for evaluating each candidate habitat. This tool lessens subjectivity in the evaluation process. Habitats which receive a score above a specific threshold value are then recommended by the Department of Environmental Conservation for designation by the Secretary of State as significant coastal fish and wildlife habitats. Each habitat is then mapped and described in a habitat narrative.

Local Participation

Public review of recommended sites begins when the Department of State distributes information packets for each habitat to local officials and concerned citizens at regional information meetings. This packet includes showing the proposed habitat boundary and a habitat narrative describing the habitat, the community of fish and wildlife that use the habitat, and the kinds of activities that could destroy the habitat. We expect to receive valuable local information during the public review process; this information will be used to verify and add specificity to the information that had been compiled for each habitat.

Formal Public Review and Designation

The Secretary of State will send copies of reviewed habitat narratives and maps to appropriate municipal clerk offices, and post legal notification announcing the schedule of public hearings. These

hearings will be held to receive final comment on whether these habitat areas merit designation. After reviewing the hearing record, the Secretary of State will decide, in consultation with the Department of Environmental Conservation, whether to designate candidate habitats. Once designated, the significant habitats will be drawn on the Coastal Area Map and filed with respective county and municipal clerks offices.

Protection of Designated Habitats

The federal Coastal Zone Management Act and the State Waterfront Revitalization and Coastal Resources Act authorize the Department of State as the Coastal Management Agency to concur with or object to federal and State actions affecting the coast. The Department will use the information provided for each designated habitat in this consistency review process and as a result will disapprove proposed actions that would significantly alter or destroy a designated habitat. In addition, communities that prepare Local Waterfront Revitalization Programs as part of the State Coastal Management Program, are required to protect designated significant habitats and are encouraged to use local land use controls for habitat protection. Finally, State agencies regulating those activities that require an environmental impact statement will ensure that significant habitats will be protected from harm from such activities.

Development and Significant Coastal Habitats

Although the fundamental purpose of the Significant Coastal Habitats Program is to preserve the viability of designated habitats, there is no prior assumption that development will harm a habitat and should therefore be prohibited. Proposed development actions will be reviewed on a case by case basis with respect to the critical parameters of each potentially affected habitat. If this action will not significantly harm the habitat then it may be approvable. When habitat impairment seems likely, Department of State staff will recommend measures that would mitigate likely impacts. Only those actions with unavoidable adverse habitat impacts would not be approved.

Benefits of the Significant Coastal Habitats Program

One of the principal benefits of the Significant Coastal Habitats Program is knowing the location of these habitats. Applicants can simply refer to the Coastal Area Map to determine whether their proposed action is located in or near a significant habitat. Costly delays created when habitats are discovered later in the project development process can be avoided. The habitats map and narrative will serve regulators by providing site specific information useful for impact assessment. Each narrative lists knowledgeable contacts who can assist in identifying mitigative techniques that when used, may allow the project to go forth without sacrificing the habitat. The Significant Habitats Program will also serve the general public in that it will enable us to use and develop our coastal land and water resources without destroying our most vulnerable and valuable habitats.

For More Information Contact:

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COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area:	**Eel Bay**
Designated:	**August 15, 1993**
County(ies):	**Jefferson**
Town(s):	**Orleans, Clayton**
7½' Quadrangle(s):	**Thousand Island Park, NY**

Score	**Criterion**
16	Ecosystem Rarity (ER) An extensive, undisturbed, shallow bay with beds of submergent vegetation; unusual in the St. Lawrence River ecological subzone.
48	Species Vulnerability (SV) Pugnose shiner (E) and blackchin shiner (SC) found in the area. Also common loon (SC) nesting area. Additive division: 36 + 16/2 + 16/4 = 48.
16	Human Use (HU) The most popular fishing area for northern pike in the Thousand Islands region, attracting anglers from throughout New York State and beyond.
6	Population Level (PL) One of about 5 major concentration areas in the St. Lawrence River ecological subzone for diving ducks during migration. Geometric mean: $(4x9)^{½} = 6$.
1.2	Replaceability (R) Irreplaceable

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R] = **103**

DESIGNATED HABITAT: EEL BAY

HABITAT DESCRIPTION:

Eel Bay is located in the upper St. Lawrence River, on the west side of Wellesley Island, in the Towns of Orleans and Clayton, Jefferson County (7.5' Quadrangle: Thousand Island Park, NY). The fish and wildlife habitat is an approximate 2,100 acre shallow bay, containing extensive beds of submergent aquatic vegetation (e.g., wild celery, pondweeds, and muskgrass), a fringe of emergent marsh vegetation, and several small islands including Big Gull and Little Gull Islands. The habitat extends southwest to the shores of Murray Isle and Picton Island. There are two sizeable emergent wetland areas, totalling about 75 acres, around the bay shoreline. The larger wetland lies between Flat Iron Island and the north shore, and the smaller one occupies the northeast corner of the bay. Average water depths in Eel Bay range from 6 to 10 feet, depending on water levels in the St. Lawrence River. The bay bottom is covered variously with soft silt, peat, or clay, except near the south shore, which is rocky. Eel Bay is somewhat sheltered from prevailing winds and wave action, by being situated in the lee of Grindstone Island. Water circulation is substantial with a large channel cutting from the southwest corner and along the shore of Grindstone Island.

The mainland surrounding Eel Bay is almost entirely within Wellesley Island State Park, and remains in a relatively undisturbed natural condition. Private lands with seasonal camps and residences occur only at the hamlet of Grandview Park, on several small islands in the bay, and just east of the larger wetland area. Public access to the area is available from a State boat launching site on the east side of the bay, and from the Minna Anthony Common Nature Center located near the south shore of Eel Bay, in Wellesley Island State Park.

FISH AND WILDLIFE VALUES:

Eel Bay is one of the most extensive shallow bay areas in the St. Lawrence River. Sheltered littoral areas of this size and quality are unusual in the St. Lawrence River ecological subzone. The combination of productive aquatic beds, good water circulation, and lack of human disturbance in this area provides highly favorable habitat conditions for a variety of fish and wildlife species.

Eel Bay is one of about five major waterfowl concentration areas in the St. Lawrence River. The bay provides excellent food resources for a variety of migratory bird species, especially diving ducks, such as scaup, canvasback, common goldeneye, redheads, and mergansers. Concentrations of several thousand birds have been observed in the area during spring (March - April) and fall (September - November, primarily) migrations in some years. Migrant waterfowl populations in Eel Bay attract considerable hunting pressure by residents of the Thousand Islands region. Considerable numbers of other waterbirds, including loons, grebes, herons, and shorebirds, also occur in the area during migration. Waterfowl utilize Eel Bay to a lesser extent during winter, depending on the amount of ice cover in the area. Bald eagles (E) have been observed using perches on various islands in the bay for hunting and roosting during the winter, although the extent of use is not well documented. Due to the lack of vegetative cover, Eel Bay provides limited breeding habitat for marsh-nesting birds. However, common loons (SC) have breed regularly in the bay since at least the 1950's, and active nests are located on islands in the

bay. This is one of the only confirmed breeding locations for this species on the St. Lawrence River. Big Gull Island continues to have marginal common tern colonies, with only two nests in 1986 and 1987. Various species of gulls and terns, including common tern (T) and black tern (SC), feed in the area during ice-out periods.

Eel Bay is probably an important fish spawning and nursery area in the St. Lawrence River. Although quantitative data are generally lacking, the bay provides suitable habitat for various resident warmwater species, including large and smallmouth bass, yellow perch, brown bullhead, and panfish, such as rock bass, and pumpkinseed. Other fish species documented in the area include the rare pugnose shiner (E) and the blackchin shiner (SC). Eel Bay is an especially important concentration area for young and adult northern pike, supporting the best year-round recreational fishery for this species on the St. Lawrence River. Anglers from throughout New York State and beyond are attracted to this area.

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 appplying 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 would substantially degrade water quality in Eel Bay could affect the biological productivity of this area. All species of fish and wildlife may be adversely affected by water pollution, such as oil spills, excessive turbidity or sedimentation, waste disposal, and discharges of sewage or stormwater runoff containing chemical pollutants (including fertilizers, herbicides, or insecticides). Spills of oil or other hazardous substances are an especially significant threat to waterfowl concentrations in this area. Disturbance of littoral areas or wetland vegetation, through dredging, filling, bulkheading, or other shoreline construction activities (including development of motorboat access facilities) would adversely affect fish and wildlife through direct loss of habitat, and through increased human disturbance during fish spawning and nursery periods (April - July for most warmwater species).

Development of additional public access opportunities to the area may be desirable, but should be located at existing access points to minimize potential disturbance of productive shallow areas. Significant human activity (e.g., motorboat traffic, fishing) on or around small islands used for nesting by common loons (SC) (from April through July) should be minimized during this period. Annual or permanent posting of active nesting areas may be desirable to help protect breeding loons from human disturbance. Substantial alteration or fluctuation of water levels in the St. Lawrence River could also affect fish and wildlife use of the area. Existing areas of natural vegetation bordering Eel Bay and on the islands in the bay, should be maintained to provide cover for wildlife, perching sites, soil stabilization, and buffer zones from human disturbance.

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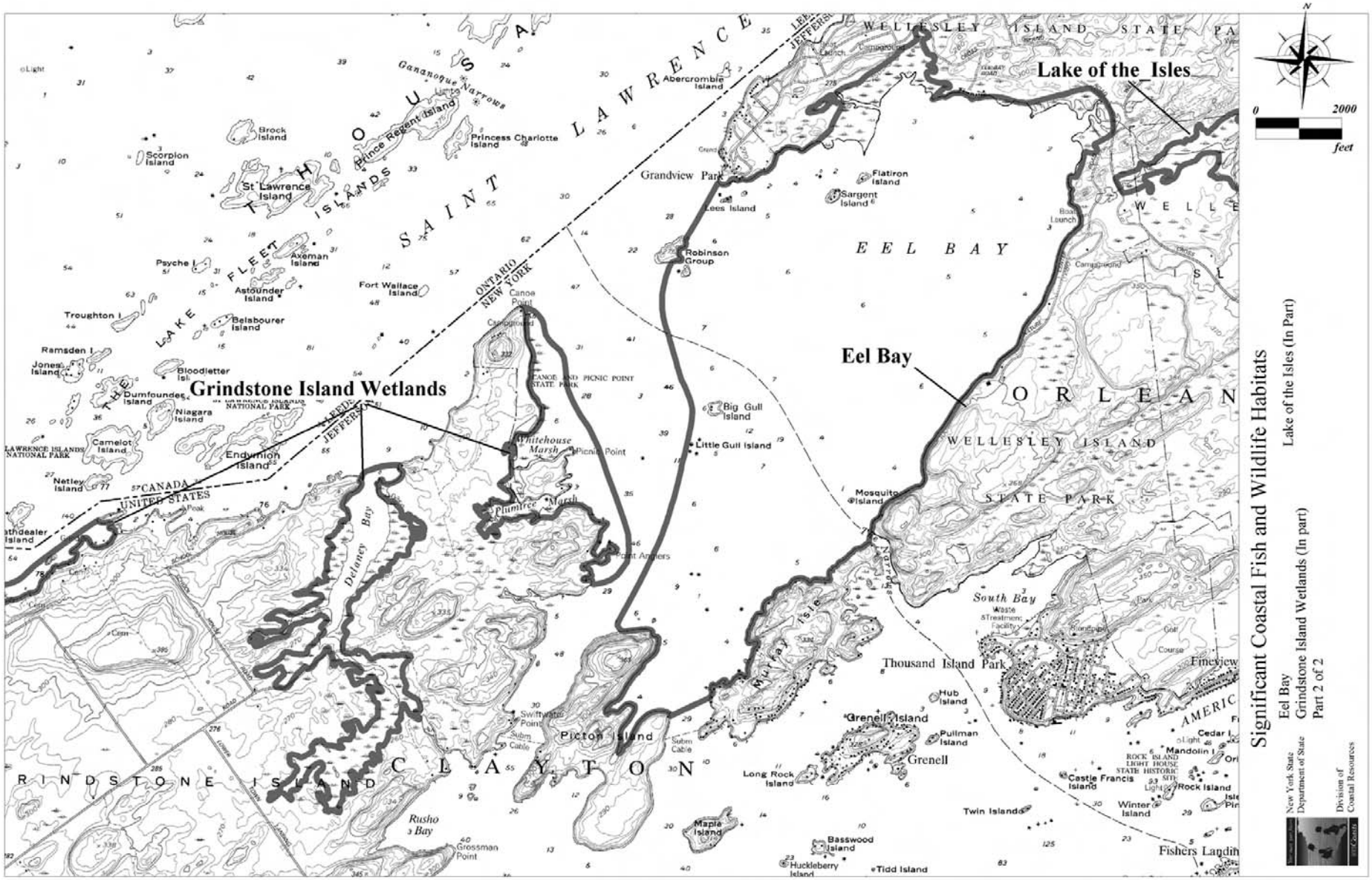

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COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area:	**French Creek Marsh**
Designated:	**August 15, 1993**
County(ies):	**Jefferson**
Town(s):	**Clayton**
7½' Quadrangle(s):	**Clayton, NY; St. Lawrence, NY**

Score	**Criterion**
16	Ecosystem Rarity (ER) One of the four largest, undeveloped, coastal streamside wetlands on the St. Lawrence River; rare in ecological subzone.
46	Species Vulnerability (SV) Northern harrier (T) and least bittern (SC) nesting. Blanding's turtles (T) reside in the area. Documented common tern (T) feeding area. Additive division: 25 + 25/2 + 25/4 + 16/8 = 46.
0	Human Use (HU) Primarily of local importance for a variety of recreational uses, including warmwater fishing, waterfowl hunting and birdwatching.
6	Population Level (PL) This area is a major producer of northern pike and panfish in the St. Lawrence River ecological subzone. Geometric mean: $(4x9)^{½} = 6$.
1.2	Replaceability (R) Irreplaceable

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R] = **82**

DESIGNATED HABITAT: FRENCH CREEK MARSH

HABITAT DESCRIPTION:

French Creek is a tributary of the upper St. Lawrence River, located in the Town of Clayton, Jefferson County (7.5' Quadrangles: Clayton, NY; and St. Lawrence, NY). The fish and wildlife habitat extends inland approximately five miles from the Village of Clayton, encompassing an approximate 700 acre streamside wetland and adjacent uplands in the NYSDEC's French Creek Wildlife Management Area. French Creek is a sizeable warmwater stream, with a broad floodplain occupied by extensive emergent marsh communities. The drainage area of French Creek is small, and little flow is discernible during the summer. Maximum channel depths of about 10 feet occur downstream of French Creek Road and Bevins Road, but are less than 5 feet in the two major branches of the creek. Water levels throughout the area are generally continuous with those of the St. Lawrence River, but fluctuations may be affected by the narrow channel opening under N.Y.S. Route 12E. The mouth of French Creek, at French Creek Bay, is outside of the Wildlife Management Area, and has been subject to considerable residential and commercial waterfront development, including diking and dredging of wetlands. Upland areas bordering the north, west, and south sides of French Creek Marsh are largely rural in nature, including woodlots, abandoned fields, active agricultural lands, and low density residential development. Agricultural activities, including livestock grazing, extend up to the wetland at some locations, but other habitat disturbances are minimal.

FISH AND WILDLIFE VALUES:

French Creek Marsh is one of about four very large, undeveloped, streamside wetland ecosystems along the St. Lawrence River. This extensive area of undisturbed habitat has a high degree of interspersion of wetland vegetation, open water, and uplands, creating favorable conditions for many fish and wildlife species. French Creek Marsh is a very productive nesting area for waterfowl and other marsh birds, including pied-billed grebe, green heron, American bittern, least bittern (SC), Canada goose, mallard, American black duck, blue-winged teal, wood duck, northern harrier (T), Virginia rail, sora, common snipe, belted kingfisher, eastern kingbird, red-winged blackbird, yellow warbler, and swamp sparrow. French Creek Marsh has also been documented as an important feeding area for common terns (T) nesting at nearby islands and navigation cells in the River. Locally significant concentrations of waterfowl use the area for feeding and resting during spring and fall migrations, but the extent of their use is limited by the lack of large open water areas. Other wildlife species inhabiting the area include raccoon, mink, beaver, muskrat, northern leopard frog, northern water snake, snapping turtle, painted turtle, and Blanding's turtle (T). Blanding's turtles were first documented at French Creek Marsh in 1977, with later observations including a gravid female near French Creek Bay.

Extensive beds of submergent and emergent aquatic vegetation in French Creek Marsh serve as valuable fish spawning and nursery habitats. The area is used extensively for spawning by a variety of warmwater fish species. French Creek is considered one of the most productive fisheries habitats along the St. Lawrence River, especially for northern pike, brown bullhead, largemouth bass, white sucker, and a variety of panfish, such as pumpkinseed, rock bass, and black crappie. French Creek Marsh has all the characteristics of a good production area for northern pike, including flooded shallow areas, a population of fathead minnows (an important prey species), and dead and decaying plant material on the stream bottom.

The abundance and diversity of fish and wildlife species in French Creek Marsh provide opportunities for various human uses of the area. Access to the marsh for passive recreational uses is available from several points in the Wildlife Management Area, and from commercial access sites in the Village of Clayton. Hunting, fishing, trapping, and informal nature study attract a significant number of local residents to the area. Fisheries production in French Creek Marsh also supports much of the year-round recreational fishing activity in French Creek Bay.

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.

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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 appplying 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 would substantially degrade water quality, increase turbidity or sedimentation, reduce water levels, alter flows, or alter water level fluctuations in French Creek Marsh could 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) may result in adverse impacts on fish and wildlife resources of the area. Spills of oil or other hazardous substances are a potentially serious threat to fish and wildlife in French Creek Marsh, and every effort should be made to prevent such contamination. Elimination of wetland habitats, or significant human disturbance of the area, through dredging, filling, construction of roads, or motorboat access development, could severely reduce its value to fish and wildlife. Channelization would reduce stream channel diversity, and result in a direct loss of valuable habitat area, including flood-plain spawning areas. However, habitat management activities may be designed to maintain or enhance populations of certain fish and wildlife species. Any significant disturbance of French Creek would be especially detrimental 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 in the creek, whether physical or chemical, could have significant impacts on fish populations within the marsh, and in French Creek Bay. Existing areas of natural vegetation bordering French Creek Marsh should be maintained for their value as cover for wildlife, perching sites, and buffer zones. Efforts should be made to reduce habitat disturbance by agricultural activities, especially grazing, through fencing and restoration of riparian vegetation. Potentially incompatible human use of the area, such as use of motorboats, waste disposal, or camping, should be restricted through enforcement of existing Wildlife Management Area regulations.

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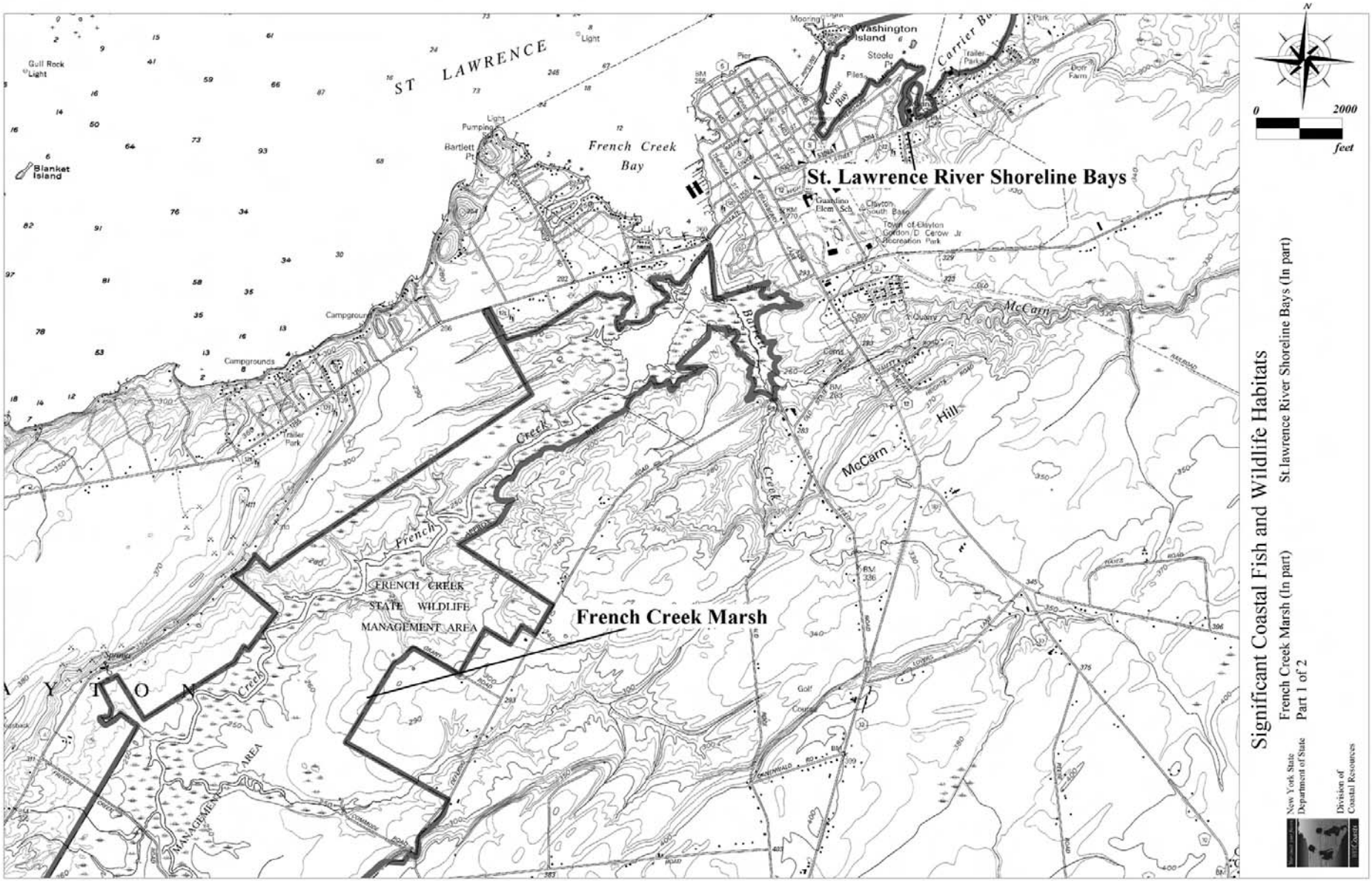

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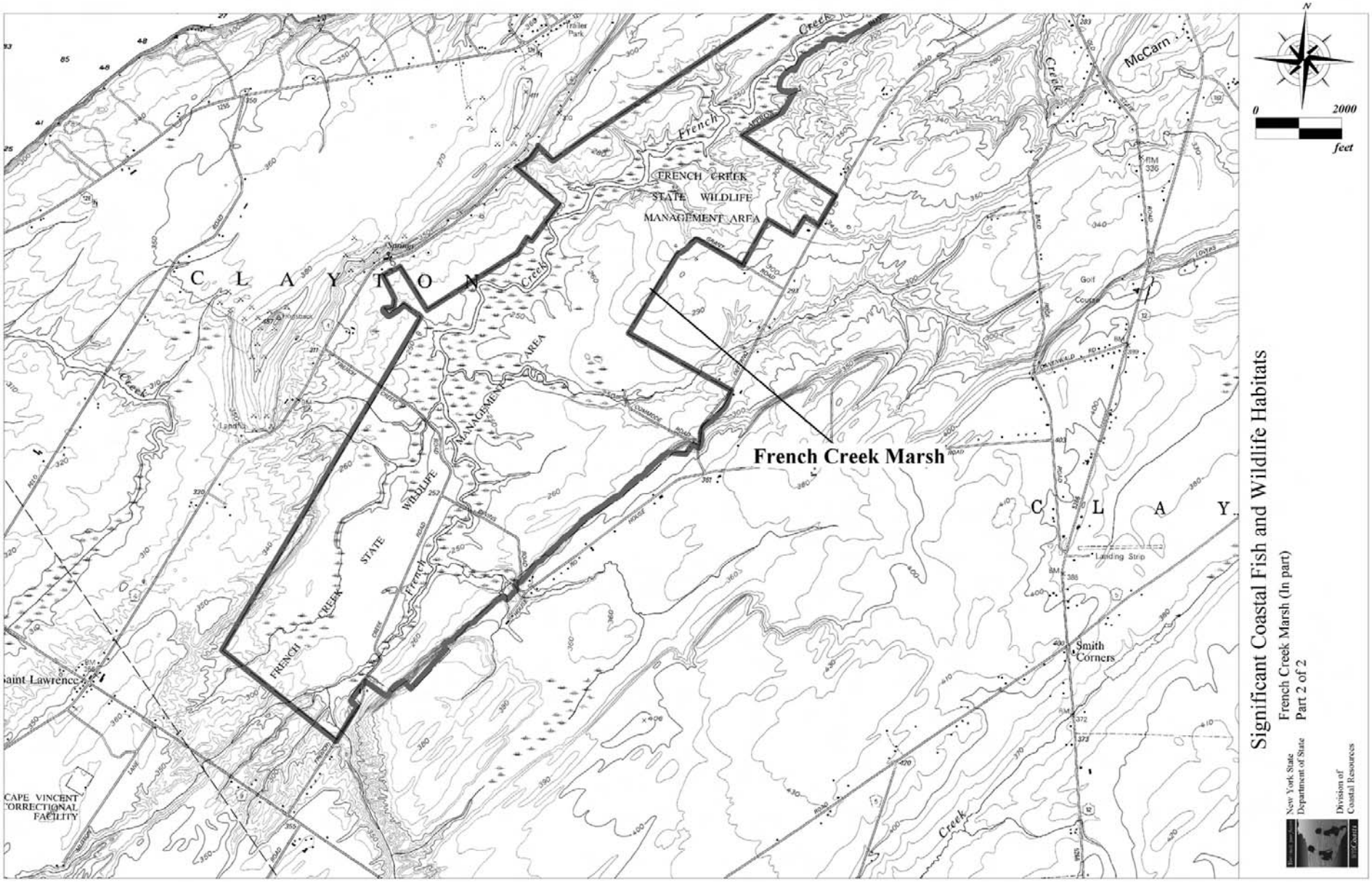

Significant Coastal Fish and Wildlife Habitats

French Creek Marsh (In part)

Part 2 of 2

New York State Department of State

Division of Coastal Resources

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area:	**Grindstone Island Wetlands**
Designated:	**August 15, 1993**
County(ies):	**Jefferson**
Town(s):	**Clayton**
7½' Quadrangle(s):	**Gananoque, ONT-NY; Thousand Island Park, NY; St. Lawrence, NY.**

Score	Criterion
25	Ecosystem Rarity (ER) One of the largest, shallow, riverine bay and wetland ecosystems on the St. Lawrence River; subject to minimal disturbance; rare in New York State.
25	Species Vulnerability (SV) Nothern harrier (T) nesting.
4	Human Use (HU) Recreational fishing for pike, bullhead, and bass attracts substantial use by Jefferson County residents.
16	Population Level (PL) Major muskellunge spawning and nursery areas in the St. Lawrence River, of statewide significance.
1.2	Replaceability (R) Irreplaceable

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R] = **84**

DESIGNATED HABITAT: GRINDSTONE ISLAND BAYS

HABITAT DESCRIPTION:

Grindstone Island is the second largest island in New York's portion of the upper St. Lawrence River, located approximately three miles northwest of the Village of Clayton, in the Town of Clayton, Jefferson County (7.5' Quadrangles: Ganonoque, ONT-NY; Saint Lawrence, NY; and Thousand Island Park, NY). The fish and wildlife habitat consists of four large coastal wetland and bay areas on the island. These are: Flynn Bay (approximately 270 acres), which includes adjacent Lindley Bay, located at the southern end of Grindstone Island; McCrae Bay (325 acres), which includes adjacent New Bay, located in the northwestern part of the island; Delaney Bay (200 acres), located in the northeastern part of the island; and the littoral shoreline which extends from Canoe Point south to Point Angiers (200 acres), located along the eastern part of the island. Flynn Bay is a wide-mouth bay facing the main channel of the St. Lawrence River. It has the smallest emergent wetland of the four bays, but features an extensive littoral zone. Flynn Bay is exposed to considerable current and wave action, so submergent vegetation is sparse. McCrae Bay and Delaney Bay are dominated by extensive emergent marshes that extend inland up to two miles. Both of these bays are bisected into upper and lower wetland portions, by a small road crossing over McCrae Bay, and by a natural island in Delaney Bay Marsh. The marshes extending from Canoe Point south to Point Angiers consist of extensive littoral zones and shoreline marshes and coves, including Whitehouse Marsh and Plumtree Marsh.

Despite differences in vegetative cover, the Grindstone Island Wetlands share a number of ecological characteristics. Water depths in all four areas generally do not exceed six feet, and are continuous with those of the St. Lawrence River. Drainage areas of the wetlands are small, and little flow is discernible during the summer. Surrounding upland areas are essentially undeveloped, including active agricultural lands, abandoned fields, and woodlots. Habitat disturbances in Grindstone Island Bays are generally limited to occasional livestock grazing, use of motorboats in the bays, and the presence of rural road crossings. All of Grindstone Island Bays are privately owned, except for the marshes adjacent to Canoe Point and Picnic Point State Park.

FISH AND WILDLIFE VALUES:

Grindstone Island Wetlands encompass some of the largest, undeveloped, bays and wetlands in the St. Lawrence River. These areas comprise an extensive riverine natural area complex that is rare in the Great Lakes Plain ecological region of New York. The relatively large size, ecological diversity, and lack of human disturbance of Grindstone Island Bays are important factors contributing to the fish and wildlife values of this area.

Grindstone Island Wetlands provide valuable habitats for a variety of fish and wildlife species. Although there have been few documented studies of the area, Grindstone Island Bays are known to be very productive nesting areas for waterfowl and other marsh birds, including green heron, American bittern, mallard, gadwall, northern harrier (T), Virginia rail, sora, common gallinule, spotted sandpiper, belted kingfisher, marsh wren, common yellowthroat, red-winged blackbird, and swamp sparrow. Other species which regularly feed in these areas during the breeding season include black-crowned night heron, great blue heron, and common tern (T), but the extent

of use by these species is not well documented. Concentrations of waterfowl (especially dabbling ducks) also use the bays for feeding and resting during spring and fall migrations (March - April and September - November, primarily); at least several hundred ducks have been observed in the area in some years. Other wildlife species occurring in Grindstone Island Bays include muskrat, mudpuppy (reported from Flynn Bay), many common species of frogs and turtles, and northern water snake. The relatively close proximity of the four wetland areas to one another probably allows some species to move between areas to meet their daily or seasonal habitat requirements.

Grindstone Island Wetlands serve as a major reproductive habitat for fish populations in the upper St. Lawrence River. The bays and wetlands are productive fish spawning and nursery areas, supporting sizeable populations of many warmwater species, such as northern pike, brown bullhead, largemouth bass, and various minnows and shiners. In addition to the wetland fish spawning and nursery values, the littoral shoals are significant muskellunge reproduction. Studies of these wetland bay complexes in the mid-1980's indicated that these areas serve as significant spawning and nursery grounds for muskellunge. These bays, along with the St. Lawrence River Shoreline Bays, comprise the majority of all documented muskellunge spawning areas in the St. Lawrence River. Some spawning and feeding by smallmouth bass may occur in these areas, but this is usually concentrated at the outer edges of the bays.

The abundance and diversity of fish and wildlife in Grindstone Island Wetlands provide potential opportunities for various human uses of the area. Local residents use the wetlands to a considerable extent for waterfowl hunting, trapping, and fishing. Consistent evidence of annual muskellunge spawning and nursery uses indicates that this area supports contributes to the area's muskellunge population. The adult muskellunge population is the basis of a sports fishery which attracts anglers from throughout the Thousand Islands major recreational region of New York State. Recreational fisheries for pike, bullhead, and bass in the major bays on Grindstone Island attract additional anglers from throughout Jefferson County.

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 appplying 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 comunity structures, 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 would substantially degrade water quality, increase turbidity or sedimentation, reduce water levels, alter flows, or increase water level fluctuations in Grindstone Island Wetlands could 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) into these areas may result in adverse impacts on fish and wildlife resources. Spills of oil or other

hazardous substances are a potentially serious threat to fish and wildlife in Grindstone Island Wetlands and every effort should be made to prevent such contamination. Elimination of wetland habitats (including submergent vegetation), or significant human disturbance of the area, through dredging, filling, construction of roads, waste disposal, or motorboat access development, could severely reduce the value of Grindstone Island Wetlands to fish and wildlife. Activities that would subdivide these large, undisturbed areas into smaller fragments should be restricted. Channelization would reduce stream channel diversity, and result in a direct loss of valuable habitat area. However, habitat management activities, including water level management or expansion of productive littoral areas, may be designed to maintain or enhance populations of certain fish or wildlife species.

Any significant disturbance of Grindstone Island Wetlands would be especially detrimental 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 in major stream channels, whether physical or chemical, could have significant impacts on fish populations within the marshes, bays, and the upper St. Lawrence River. Adequate drainage of wetland areas located above road crossings should be provided through the installation and maintenance of bridges or culverts, if necessary. Existing areas of natural vegetation bordering these wetlands should be maintained for their value as cover for wildlife, perching sites, and buffer zones. Efforts should be made to reduce stream disturbance by agricultural activities, especially grazing, through fencing and restoration of riparian vegetation. Development of additional public access may be desirable to increase compatible human uses of the wetlands, but must be designed to minimize disturbance of sensitive fish and wildlife species that occur in the area.

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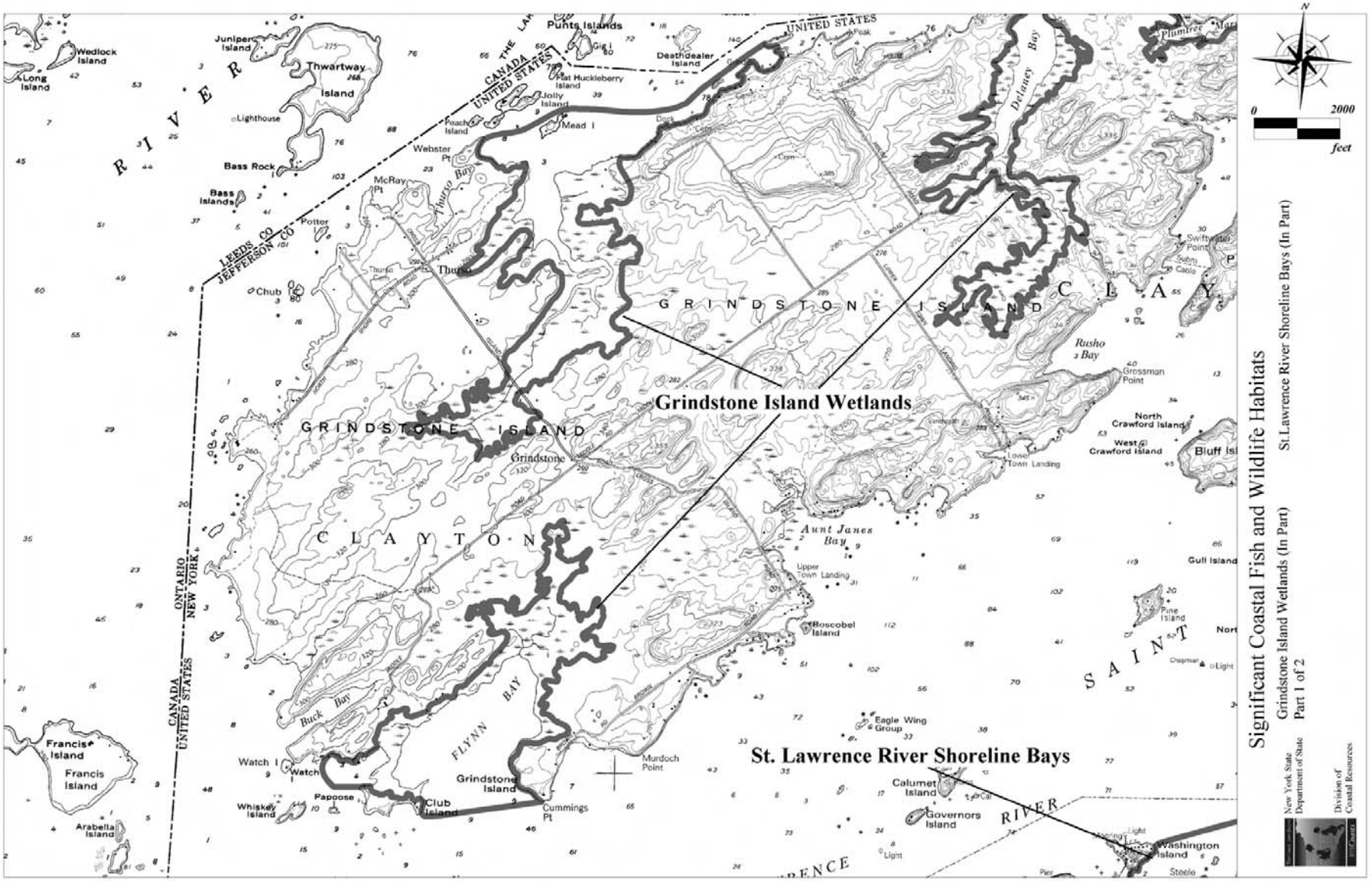

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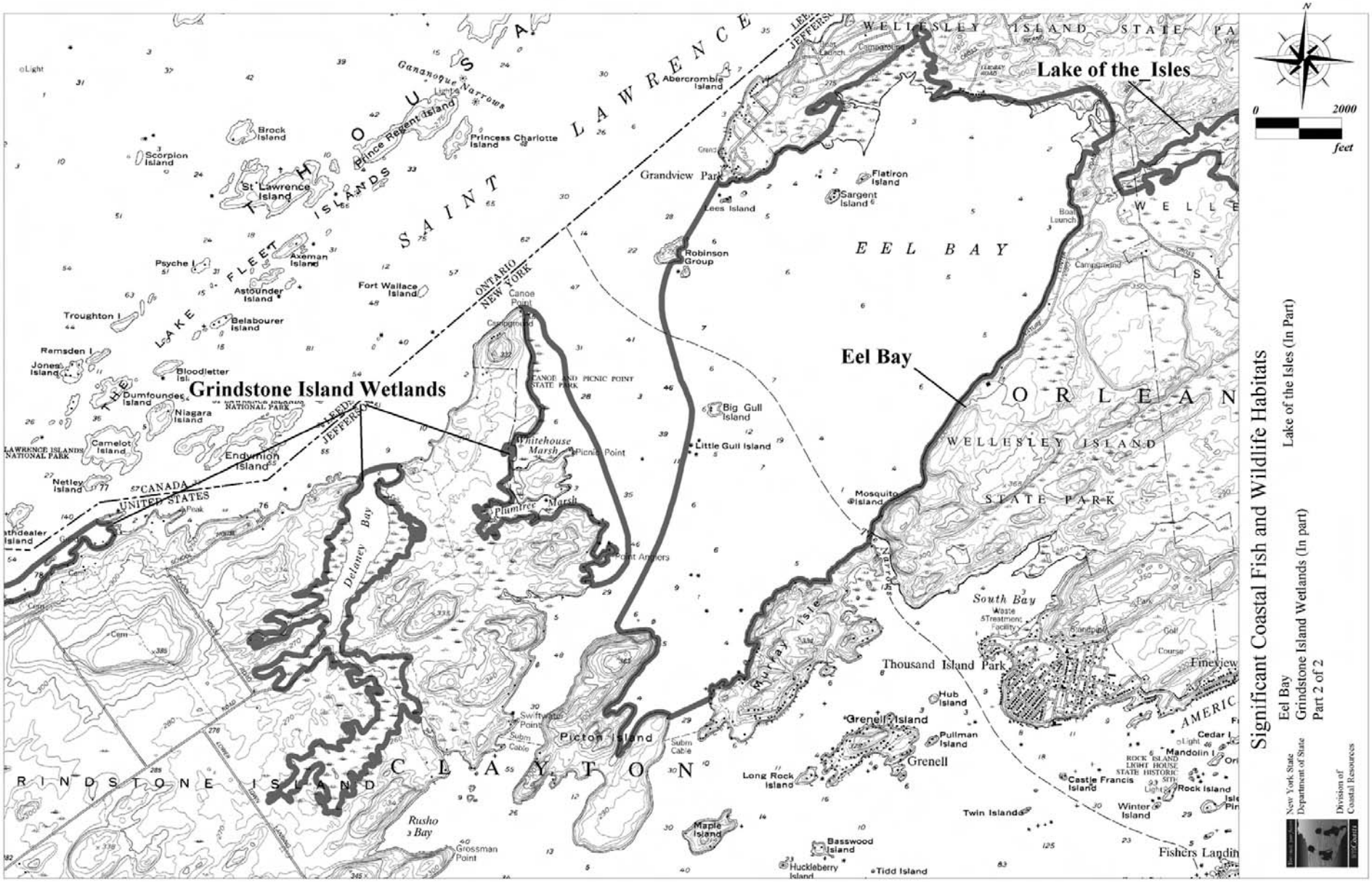

Significant Coastal Fish and Wildlife Habitats

Lake of the Isles (In Part)

Eel Bay

Grindstone Island Wetlands (In part)

Part 2 of 2

New York State Department of State

Division of Coastal Resources

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area:	**St. Lawrence River Shoreline Bays**
Designated:	**August 15, 1993**
County(ies):	**Jefferson**
Town(s):	**Clayton, Orleans, Alexandria, Cape Vincent**
7½' Quadrangle(s):	**Clayton, NY; Thousand Island Park, NY; Alexandria Bay, NY; St. Lawrence, NY; Cape Vincent North, NY**

Score	**Criterion**
9	Ecosystem Rarity (ER) Several shallow shoreline bays with dense beds of aquatic vegetation; rare in Jefferson County based on protected nature of bays.
0	Species Vulnerability No endangered, threatened or special concern species are known to reside in the area.
16	Human Use (HU) The St. Lawrence muskellunge fishery, which is dependent on these bays, attracts anglers from throughout New York State and beyond.
16	Population Level (PL) These bays comprise major spawning and nursery areas for muskellunge on the St. Lawrence River, of statewide significance.
1.2	Replaceability (R) Irreplaceable.

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R] = **38**

DESIGNATED HABITAT: ST. LAWRENCE RIVER SHORELINE BAYS

HABITAT DESCRIPTION:

The St. Lawrence River Shoreline Bays are located on the upper St. Lawrence River, between the Villages of Clayton and Alexandria Bay, in the Towns of Cape Vincent, Clayton, Orleans, and Alexandria, Jefferson County (7.5' Quadrangles: Cape Vincent North, NY; St. Lawrence, NY; Clayton, NY; Thousand Island Park, NY; and Alexandria Bay, NY). The fish and wildlife habitat consists of eight shallow bays along the River's mainland shoreline. From southwest (upriver) to northeast (downriver), these bays are: Peos Bay (20 acres); Millen Bay (35 acres); Rose Bay (30 Acres); Carrier Bay (160 acres); Grass Point Bay (190 acres); Cobb Shoal Bay, also known as Moore Landing Marsh (40 acres); Swan Bay (140 acres); and Point Vivian Marsh (75 acres). The latter four form an almost continuous three and one-half mile reach of productive littoral zone and wetland habitat. All of the bays are generally less than six feet deep (depending on River levels) and are somewhat sheltered from prevailing winds and wave action. Much of the land area surrounding the St. Lawrence River Shoreline Bays is privately owned, and has been developed into seasonal camps, permanaent residences, and small craft harbor facilities (resulting in some habitat disturbance). Grass Point State Park and Collins Landing Wildlife Management Area are exceptions to the predominance of private land ownership. These two public areas provide direct access for public use of the resources associated with the habitat.

FISH AND WILDLIFE VALUES:

The St. Lawrence River Shoreline Bays comprise a fairly extensive area of shallow riverine habitat. Relatively protected embayments supporting extensive beds are not common in Jefferson County. Although these areas have been subject to considerable human disturbance, they continue to be important fish spawning and nursery areas in the St. Lawrence River. All of the bays support productive populations of various warmwater species, including northern pike, brown bullhead, largemouth bass, and various forage fish species. Of special significance, however, is the use of these areas by muskellunge. Studies conducted by NYSDEC and others, in the mid-1980's, revealed that all eight bays serve as spawning and nursery areas for muskellunge. Further research may indicate the other bays in the vicinity are used by muskellunge. Spicer Bay, Blind Bay, and Mullet Creek Bay are potential future additions to the Shoreline Bays habitat, but are more wind-exposed and may fail to support spawning by this species. Muskellunge populations in the St. Lawrence River, which comprise a distinct subspecies from muskellunge populations found elsewhere in New York State, appear to be largely dependent on the habitat found within St. Lawrence River Shoreline Bays. This area, in combination with Grindstone Island Bays, comprise the majority of known muskellunge spawning and nursery habitat in the St. Lawrence. The recreational fishery for this species attracts anglers from throughout New York State, as well as from adjoining states and provinces.

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.

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The range of parameters which should be considered in appplying the habitat impairment test include but are not limited to the following:

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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 would substantially degrade water quality, increase turbidity or sedimentation, reduce water levels, or increase water level fluctuations in the St. Lawrence River Shoreline Bays could adversely affect fish and wildlife use of these areas. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides, or insecticides) into any of the bays may result in adverse impacts on fish and wildlife resources. Spills of oil or other hazardous substances are a potentially serious threat to fish populations on the Shoreline Bays area and every effort should be made to prevent such contamination. Significant human disturbances of the area, through dredging, filling, construction of roads, waste disposal, or unlimited motorboat access development, could severely reduce the habitat's value as a spawning and nursery habitat. Such disturbances would be especially detrimental during fish spawning and nursery periods (March through July for most species). Existing areas of natural vegetation bordering the St. Lawrence River Shoreline Bays should be maintained for their value as cover for wildlife, perching sites, and buffer zones.

KNOWLEDGEABLE CONTACTS:

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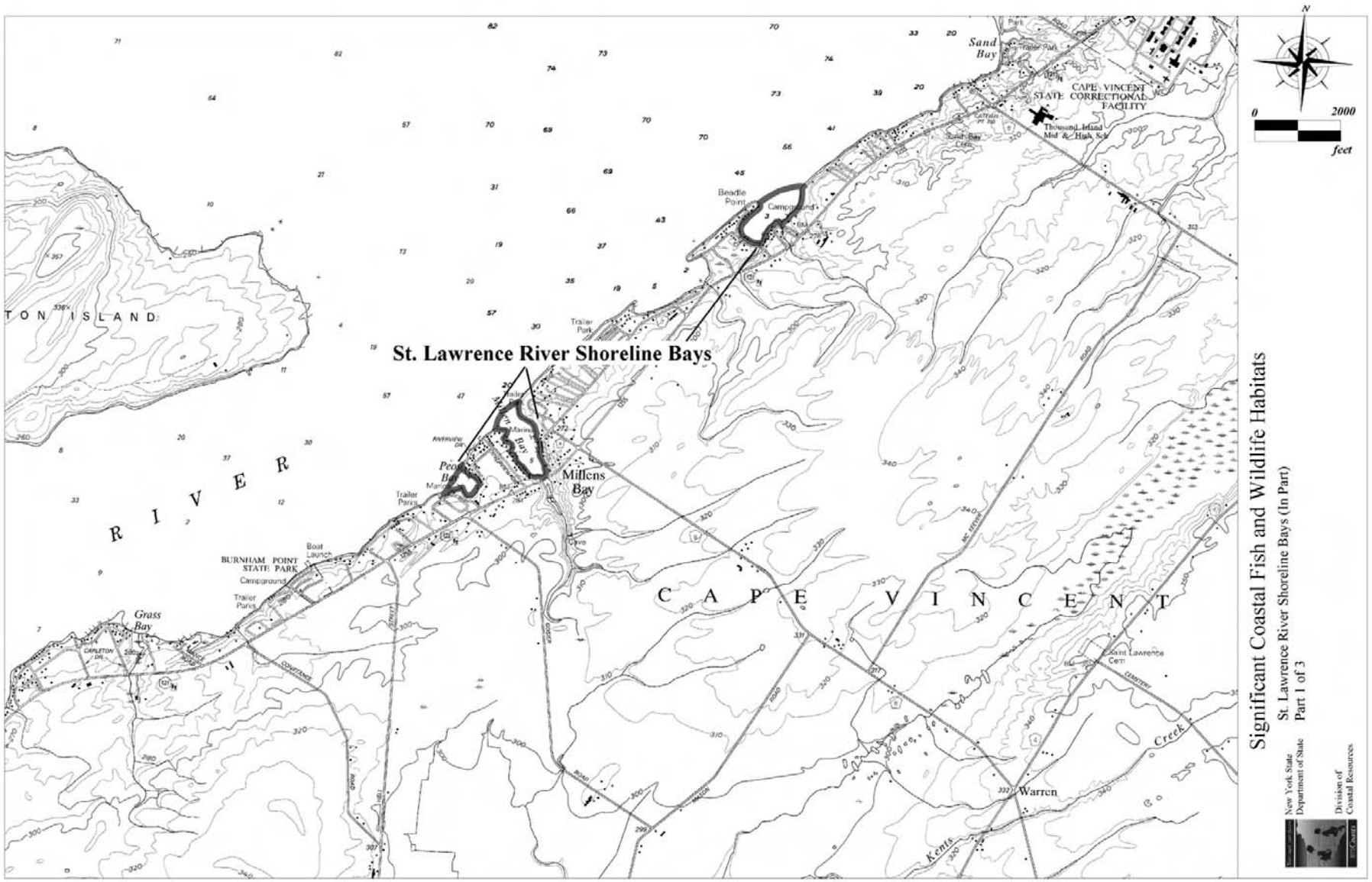

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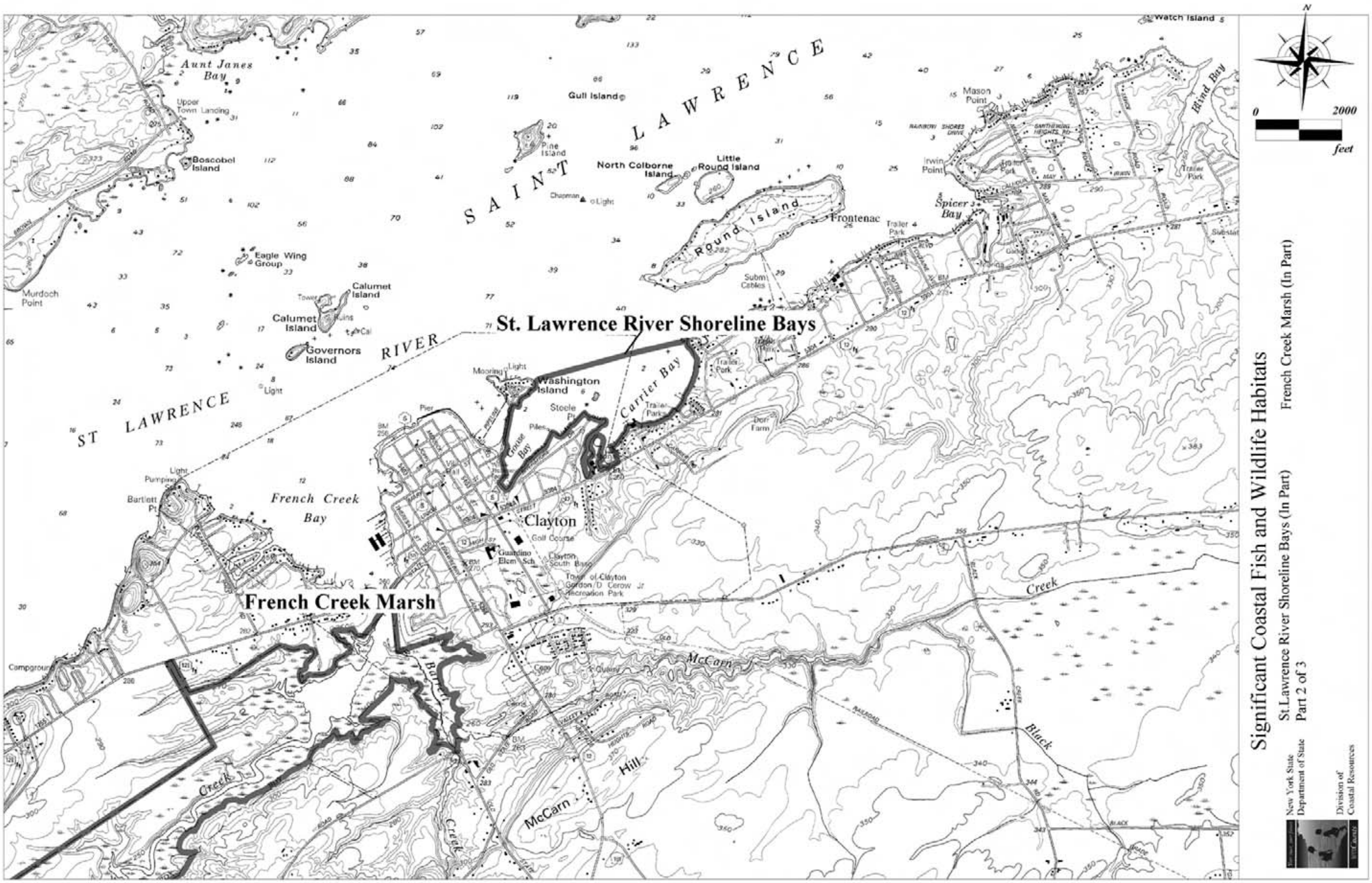


Significant Coastal Fish and Wildlife Habitats

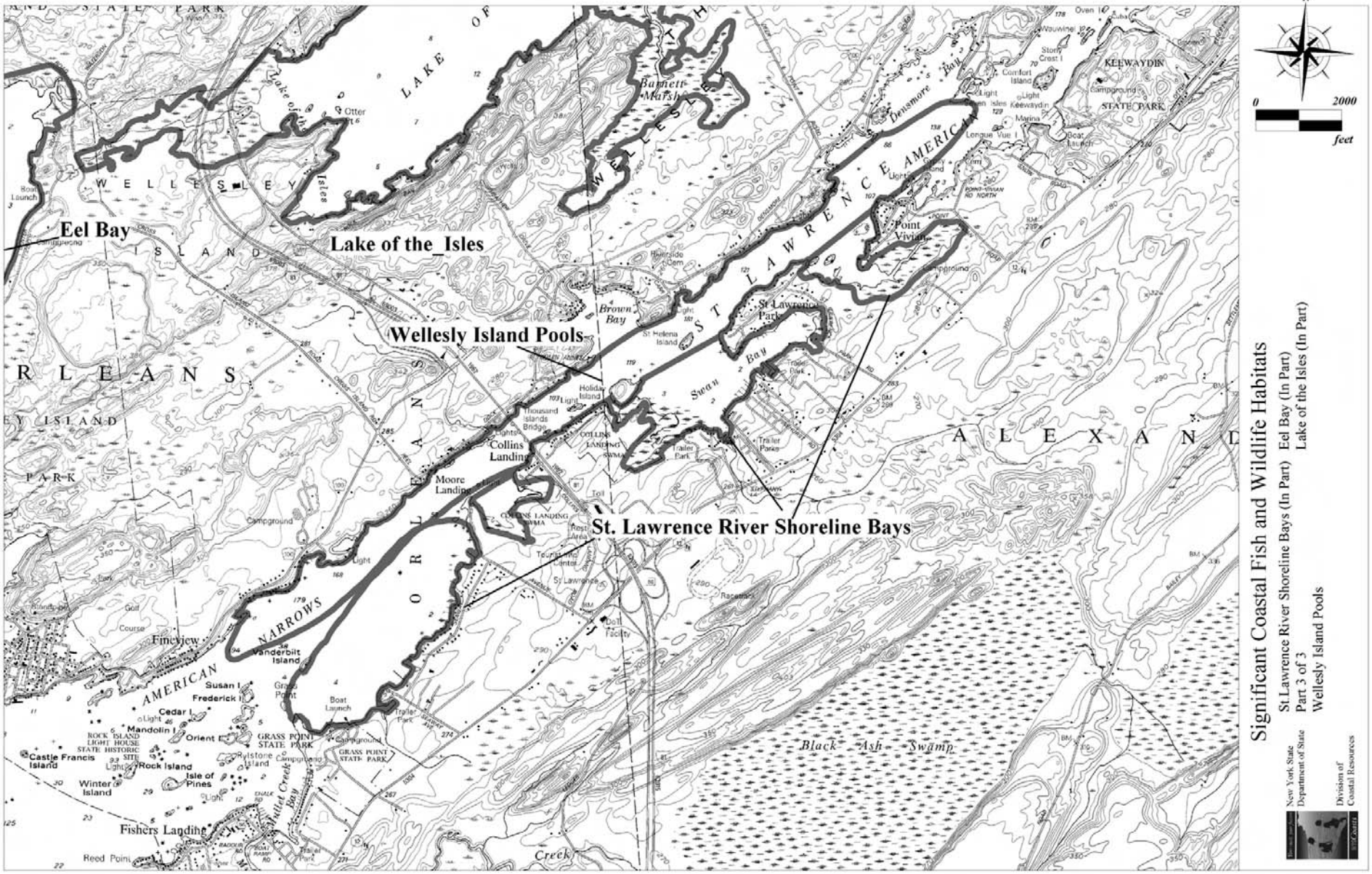
St.Lawrence River Shoreline Bays (In Part)

French Creek Marsh (In Part)

Part 2 of 3

New York State Department of State

Division of Coastal Resources



Significant Coastal Fish and Wildlife Habitats

St.Lawrence River Shoreline Bays (In Part) Eel Bay (In Part)
Lake of the Isles (In Part)
Part 3 of 3
Wellesly Island Pools

New York State Department of State
Division of Coastal Resources

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:
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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.

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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 appplying 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.

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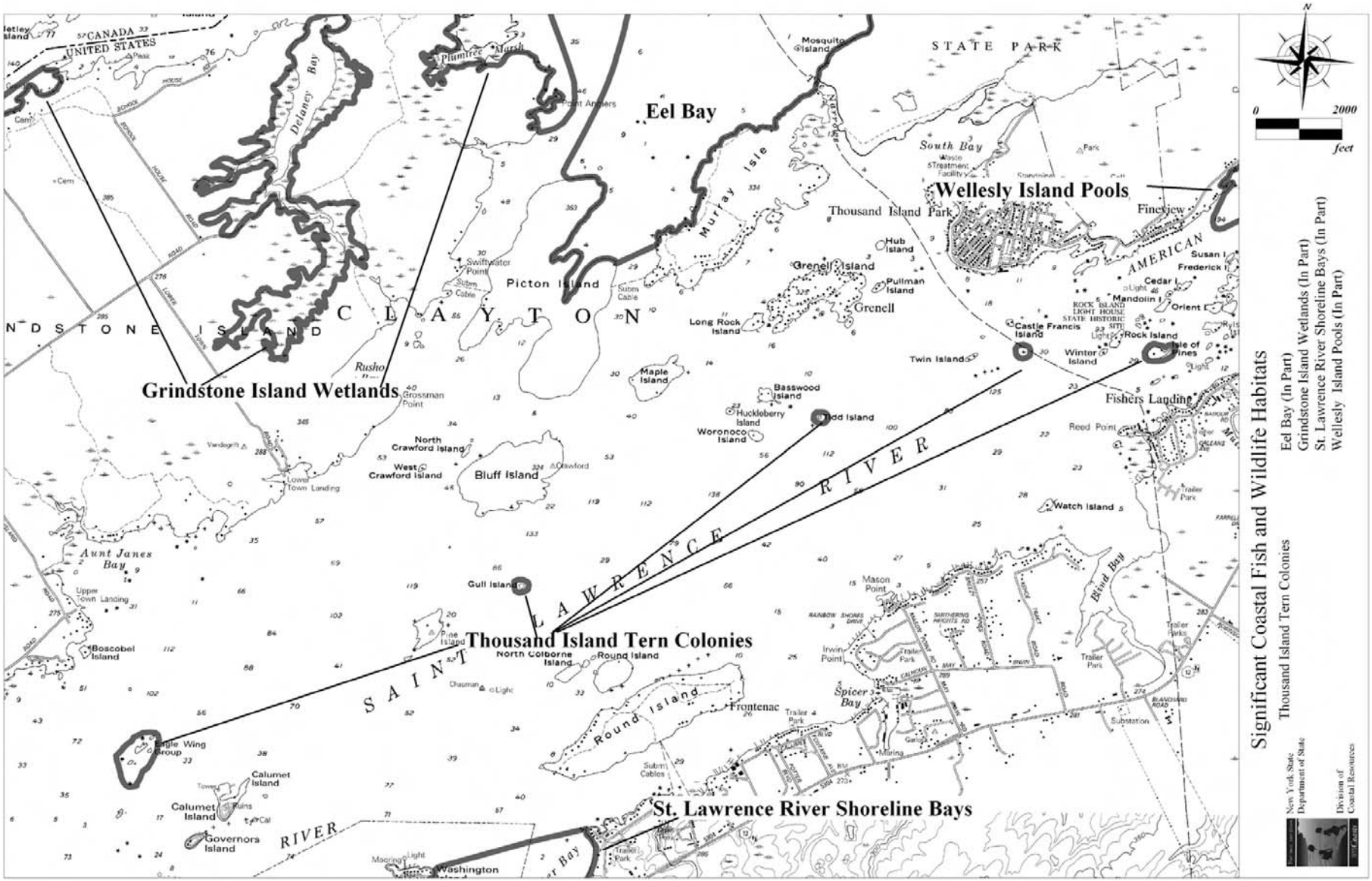

July 23, 2004

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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 appplying 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.

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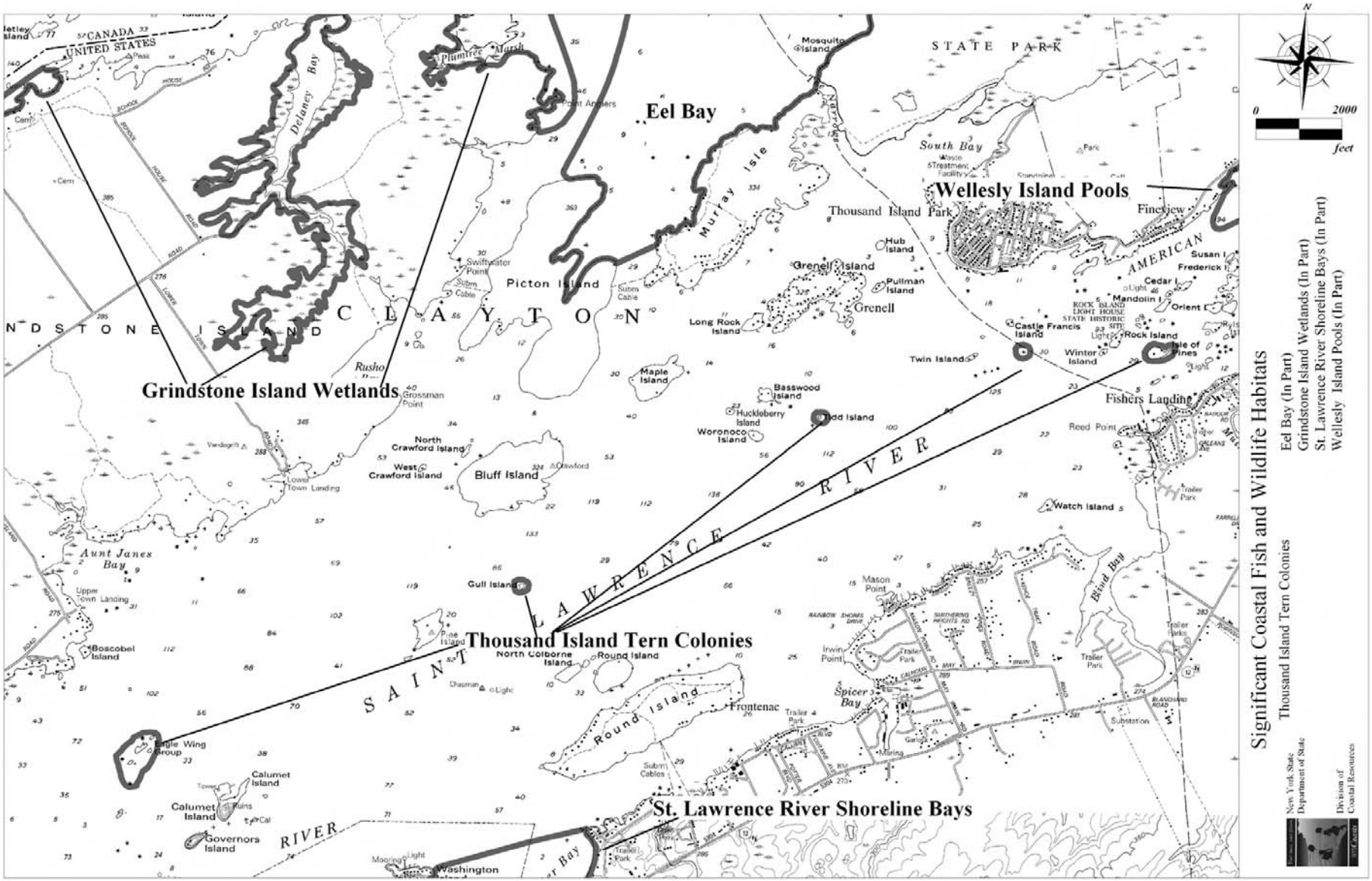

July 23, 2004

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