TASK 2.2 #2

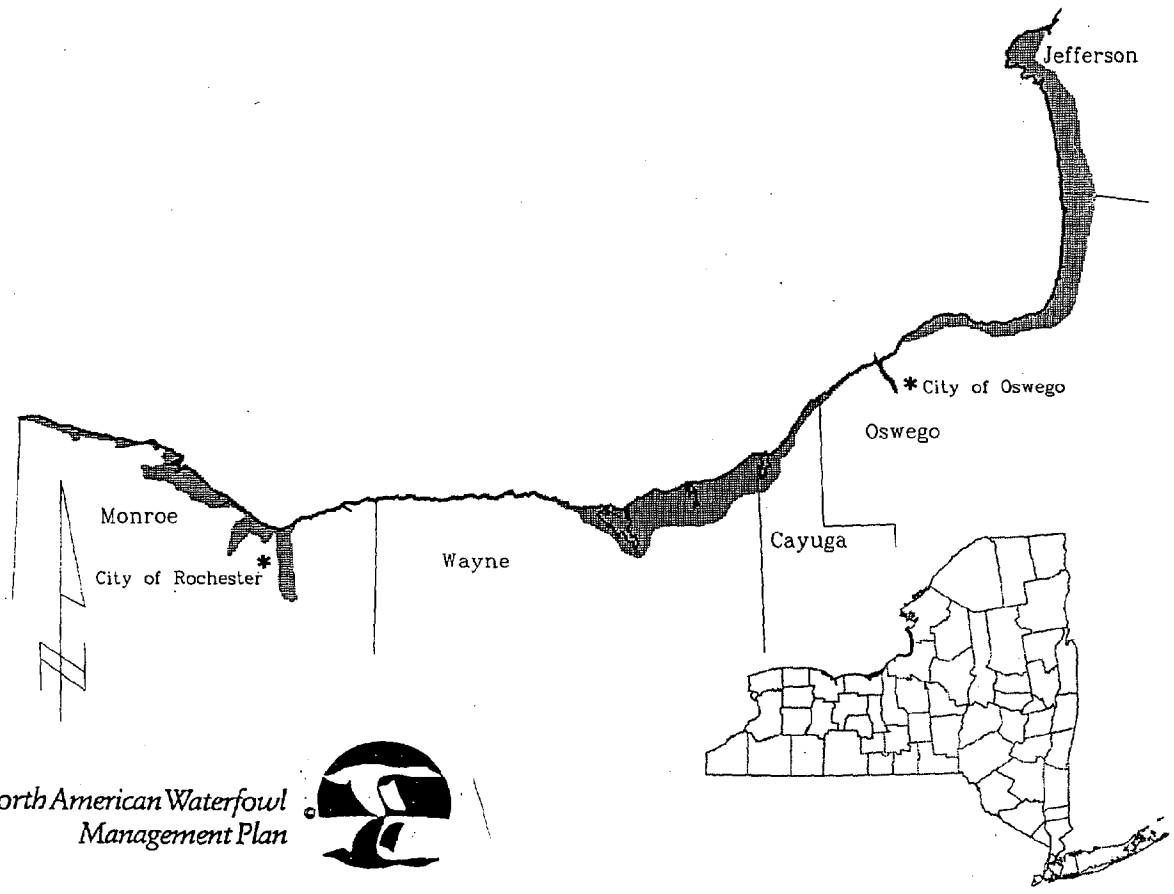
FY 91 4th quarter

Lower Great Lakes - St. Lawrence Basin Joint Venture

DRAFT

Lake Shore Marshes

Focus Area Plan



North American Waterfowl Management Plan

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

US Department of Commerce
NOAA Coastal Services Center Library
2234 South Hobson Avenue
Charleston, SC 29405-2413

This report was supported, in part, with financial assistance from the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, provided under the Coastal Zone Management Act of 1972, as amended.

Table of Contents i

Executive Summary iii

Introduction

Goals and Objectives 1
Project Area Description 2
Western Reach Description 2
Central Reach Description 5
Eastern Reach Description 6
Land Use 7
Influence of Lake Levels 9

Methods

Study Area Boundary Determination 14
Selection and Resource Inventory of Individual Study Sites 14
Habitat Evaluation 17
Evaluation of Potential Management Strategies 18

Strategies

Ecological Management Plans 19

Land Protection 19
Fee title acquisition
Other property transfer methods
Options retaining land ownership

Habitat Management and Restoration 22
Artificial nesting structures
Beaver management
Dense nesting cover
Exotic species control
Water level controls
Rare species management
Increasing structural diversity
Shallow pond construction
Restoration and reclaimation
Passive management
Research prior to action

Public Use Management 25
Enhancing human use
Limiting human use

Water Quality Improvement 26
Watershed management plans
Riparian corridor buffers
Adjacent buffer areas
Retention pond construction

QH76.5 .N7 L69 1991

Site Evaluations
Western Reach
map 31
index 32
site assessments 33
Central Reach
map 52
index 53
site assessments 54
Eastern Reach
map 82
index 83
site assessments 84

Results and Analysis
Overview of Focus Area Site Characteristics 102
Specific Habitat Use by Type 107
Specific Habitat Use by Reach 108

Implementation (Specific Application of Strategies to Focus Area) . . . 115

Recommendations for Membership 124

References 125

Planning Team Members 127

Appendix
A1-Explanation of Natural Heritage Program Ranks
A2-Focus Area Maps

EXECUTIVE SUMMARY

The Lake Shore Marshes Focus Area (Focus Area) is part of the Lower Great Lakes/St. Lawrence Basin Joint Venture under the North American Waterfowl Management Plan. The Focus Area is located along the southern and eastern shores of Lake Ontario from the Town of Hamlin, Monroe County to the Town of Henderson, Jefferson County. The offshore boundary extends into Lake Ontario approximately 1000 feet from the shoreline. The inland boundary encompasses most lake-associated hydrologic features and generally follows the New York State Coastal Area Boundary along identified topographic or cultural features. The focus area contains approximately 131,000 acres including 23,000 acres of major wetlands and embayments associated with Lake Ontario, with the remaining acreage being split between offshore lakewaters and adjacent upland buffer areas. Sixty-five wetland or hydrologically defined sites were identified through the resource inventory process for the focus area.

The focus area has been divided into three sub-units or reaches based on several characteristics including surficial geology, vegetative cover, hydrology, land use, wetland characteristics, and values for wildlife use. The western most reach consists of 19 hydrologic units or sites totalling 5,570 acres of wetlands that span the shoreline from the Town of Hamlin to the Town of Penfield in Monroe County. This reach is characterized by level landscape, fruit and grain agriculture, small 'islands' of woodland, moderate to heavy human population densities, waterfront cottage and residential development and lack of buffers around wetlands. The predominant wildlife use of these wetlands is for staging areas by migratory birds including both waterfowl and passerine species. Overwintering use by waterfowl in this reach is normally minimal, although congregations can sometimes be found in nearshore waters and larger bays. Nesting habitat for waterfowl is marginal in this reach.

The central reach is comprised of 28 sites totalling 7,734 acres and stretches from the Town of Sodus in Wayne County east to the Town of Scriba in Oswego County. This reach is characterized by a landscape of drumlins, intense fruit agriculture, a mix of forest and open field, moderate population densities with second homes and camps along the lake shore, marinas and recreational boating, and high sedimentation loads. Wildlife use in this reach is also predominantly for migratory bird staging. Significant waterfowl nesting occurs throughout the reach in those wetlands which are well-buffered from human development and are often fronted by stable barrier beaches which moderate fluctuating water levels and provide a mix of cover types. Waterfowl, resident passerines, raptors, and gulls make use of wintering habitat in this reach particularly around the mouth of the Oswego River, power plant discharge areas, and nearshore shoals.

The eastern reach occurs along the eastern shore of Lake Ontario and the western toe of the Tug Hill Plateau. It stretches from the Town of New Haven in Oswego County to the Town of Henderson in Jefferson County. The reach has 18 wetland sites totalling 9,620 acres with substantial shoreline development on private land involving second homes, marinas, boating, recreation and tourism activities. Additional significant components of the landscape are beach systems, cold water tributaries, and an unusual concentration of rare species and communities. The eastern reach provides important habitat values for migratory bird staging and significant nesting habitat for many birds including waterfowl. The larger

wetland complexes provide relatively undisturbed nesting habitat for waterfowl, passerines and vulnerable species such as black tern and least bittern. While the lakeshore has little waterfowl wintering potential, the large embayments provide important pre-ice wintering values for large numbers of waterfowl.

A thorough review of existing sources of information pertaining to the wetland and wildlife resource areas and adjacent areas was conducted for the entire Focus Area. Sources of information were supplemented with helicopter overflights, field reconnaissance, interviews and consultation with selected local biologists, and contacts with various state and federal agencies. Comprehensive evaluations of each wetland resource unit entailed a synthesis of existing information coupled with the planning team's site analysis which identified general habitat values, land use characteristics, habitat value impediments, and vulnerable species management need. Management strategies were defined for the focus area and applicable strategies are identified for each of the 65 individual sites. The planning team has recommended that the implementation team treat the three reaches separately; each reach should have a seperate implementation sub-committee comprised of area biologists and local residents.

In addition to the site specific management recommendations, common ecological themes emerged from the analysis of the entire area and for each of its composite reaches. For the entire focus area, water quality, lake level fluctuation, land use practices and human use, dictate the habitat value of the Lake Shore Marshes.

For the western reach, land use has degraded most of the identified sites and the implementation strategy is one of restoration. Riparian forests need to be established and human uses should be moderated to improve habitat values.

In the central reach, land use practices and resultant water quality are the primary vectors of habitat impairment. Watershed restoration and protection of forested buffer lands may be the most important approaches to preserving or restoring habitat values in this remaining frontier of drumlin-defined landscape.

In the eastern reach, water quality and human use may be the most important habitat protection issues. Protection from recreational overuse is needed to avoid disturbance of rare species, productive nesting, and sensitive overwintering by one of the largest flocks of American black duck in upstate New York. Water quality requires watershed-oriented restoration approaches and improved land use practices.

Overall, the single dominant influence on the values of the Lake Shore Marshes is the fluctuation of water levels in Lake Ontario. Unlike all other Great Lakes, water level cycles in Lake Ontario nearly match both fish and wildlife spawning or nesting needs with maximum levels in spring and a slow decrease into summer. The opportunity to manage lake levels for fish and wildlife habitat values should figure prominently in any evaluation of lake level management plans. Lake levels also dictate wetland characteristics and related values. In general, those areas separated from the lake by stable barrier beaches are more diverse and provide greater waterfowl values, while those fluctuating with lake levels tend to be dominated by cattail monocultures. The approach to managing these cattail marshes should first look to management of lake levels before considering physical projects to control water levels at individual sites.

INTRODUCTION

Goals and Objectives

The North American Waterfowl Management Plan (NAWMP) was signed by the United States and Canada in 1986. The NAWMP creates a broad policy framework or blueprint for maintenance of adequate habitat to halt the decline of North American waterfowl, wetlands and other wetland related wildlife resources.

The NAWMP identifies key waterfowl habitat ranges throughout North America. The waterfowl habitat ranges are used to establish geographically defined management units called joint venture areas. The NAWMP provides a methodology for detailing goals, objectives, and strategies for each of the joint venture areas.

One of these joint venture areas is the Lower Great Lakes/St. Lawrence Basin Joint Venture Area (Joint Venture Area). This region extends from the eastern end of the upper peninsula of Michigan into Ohio, along Lakes Erie and Ontario, through Pennsylvania and New York into the St. Lawrence River Valley and northern Vermont.

This Joint Venture Area is important to breeding and migratory waterfowl, especially the American black duck, as well as numerous other related wetland species. The specific goal developed for the Joint Venture Area is: "To provide habitats and management necessary to increase and sustain populations of American black duck, mallard, blue-winged teal, and wood duck; and to benefit other wetland associated wildlife within the joint venture area, with special emphasis on American black duck habitat in support of obtaining an American black duck continental wintering population of 385,000."

The specific Joint Venture Area objectives explicitly promote the protection, enhancement, and restoration of wetlands which provide breeding, migratory staging, and overwintering habitat for the American black duck, other waterfowl, and all wetland wildlife. The size and complexity of the Joint Venture Area requires a comprehensive management approach using a variety of strategies to achieve specific goals and objectives. These strategies are implemented within smaller 'Focus Areas' of wetlands and associated upland habitat. Each Focus Area has been identified for specific characteristics such as high priority staging, overwintering, or breeding habitats for American black ducks and other waterfowl, high value to other plant and animal species, and social and economic importance.

The Lake Shore Marshes Focus Area is one of ten such areas that have been identified within the larger Lower Great Lakes/St. Lawrence Basin Joint Venture Area. The specific goals and objectives for this Focus Area are based on the Lake Shore Marshes ecological resources and the unique physical characteristics, as are the strategies recommended for implementation. These specific goals and objectives include:

> Provide mechanisms for the protection of wetland wildlife habitats, particularly those used for waterfowl migration, wintering, and breeding from further loss and/or degradation by the year 1992. Provide the opportunities to enhance the suitability of the focus area for waterfowl migration, wintering and productivity by 1995.

In order to carry out the objectives of the North American Waterfowl Management Plan throughout the Lake Shore Marshes Focus Area, a Focus Area Planning Team was established. The team's charge was to develop a plan to achieve the goals and objectives of the NAWMP that could then be carried out by an implementation team. The following Focus Area Plan has been developed through a comprehensive ecological approach to wetland and watershed management. Strategies have been developed based on the identification and analysis of habitat values, characteristics, and functional impediments. These strategies seek to maintain, enhance, and restore the habitat values of the Lake Shore Marshes Focus Area. The Focus Area Plan will be implemented by collectively pooling the talents and resources of federal, state and local governments, businesses, conservation organizations and private individuals.

Project Area Description

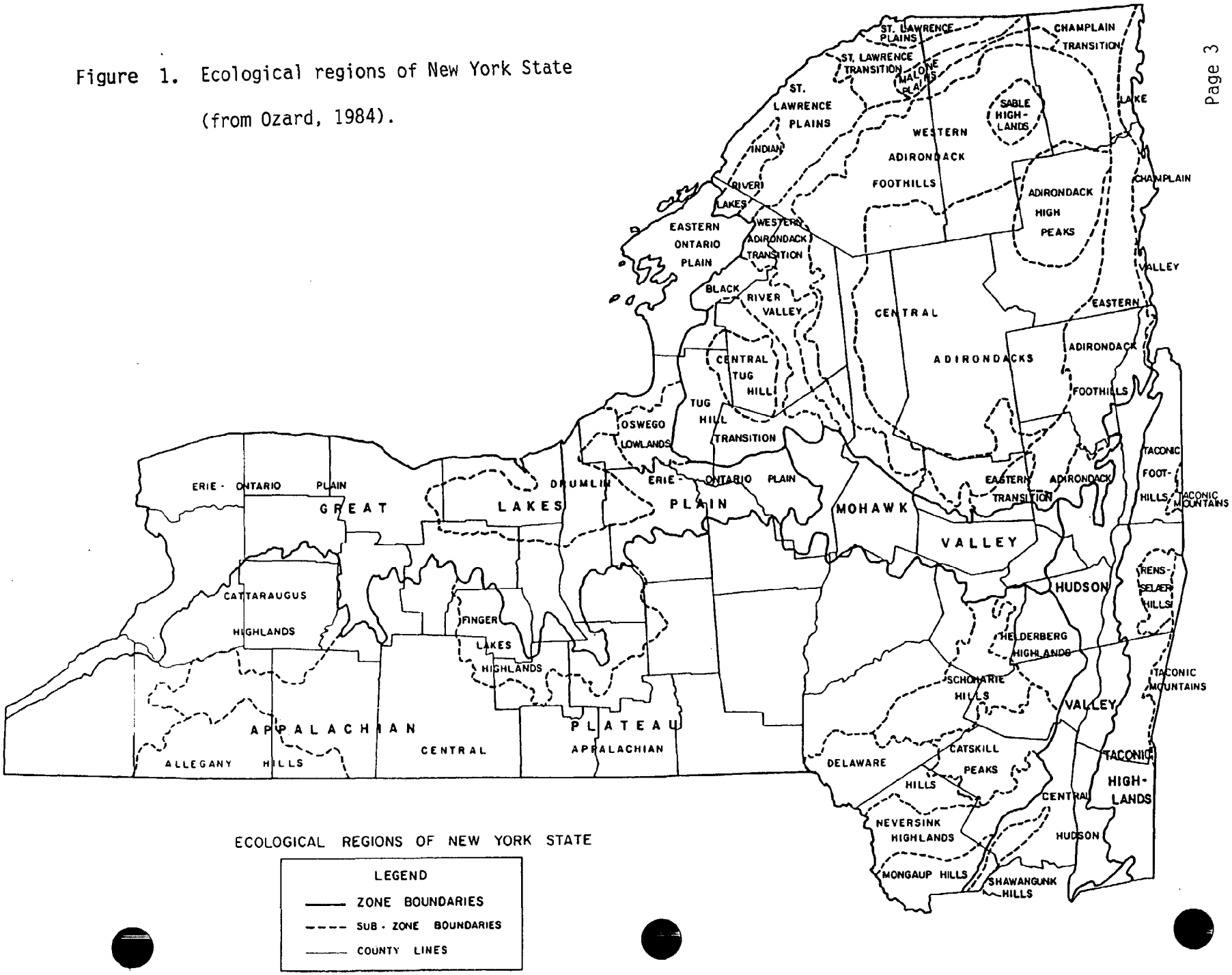
The Lake Shore Marshes Focus Area of the North American Waterfowl Management Plan lies along the southern and eastern shores of Lake Ontario. The Focus Area encompasses the wetlands associated with the lakeshore from the Town of Hamlin, Monroe County to Stony Point in the Town of Henderson, Jefferson County, and from west to east, includes the shorelines of Monroe, Wayne, Cayuga, Oswego, and the southern portion of Jefferson County. The entire area lies within the Great Lakes Plain ecological zone boundary (Ozard, 1984; Reschke, 1990). "The Great Lakes Plain ecological zone has cold, snowy winters and warm dry summers. Mean January temperatures of 25° F. are characteristic, and July mean-averages of around 70°F. are typical. Overall, this ecological zone is one of the driest regions of the state, with annual rainfall varying from 25 to 40 inches. Summer brings not only its maximum precipitation, but also its maximum need for water, and so, in most years, small water deficits occur." (Drennan, 1981). Snowfall in the zone also varies substantially, with the maximum average of 80 inches falling on the eastern Ontario Plain due to the squalls from the Lake that are carried by the prevailing westerly winds.

The physiography* of the Lake Ontario coast reflects the glacial origin of the Lake, exhibiting glacial till* bluffs, drowned rivers*, creeks and lowlands, drumlins and relict sand dune formations. At the mouth of the Niagara River, the shoreline is dominated by up to 60 foot high till bluffs which progressively lose elevation towards Rochester. This physiography accounts for the relative rarity of significant shoreline wetlands at the westernmost portion of Lake Ontario in New York, and explains why the Focus Area begins with Monroe County. Wetlands within the Focus Area also reflect a glacial origin, and are universally associated with drowned features as noted above. These features are drowned due to glacial rebound* which resulted in tilting the Lake Ontario basin, submerging the southern and eastern shorelines while elevating the Canadian shoreline. The project area is divided into three parts or reaches.

Western Reach Description

The western portion of the Focus Area - from just west of the Braddock's Bay complex to Sodus Bay - corresponds to the Erie-Ontario plain ecological subzone (Figure 1). This area is dominated by a broad Lake plain topography featuring low bluffs, small tributary-associated wetlands, and large embayments. The

Figure 1. Ecological regions of New York State (from Ozard, 1984).



Western Reach Characteristics

- extends from Town of Hamlin in Monroe County east to Town of Sodus in Wayne County
- 19 evaluated sites totalling 5570 acres [2554 hectares]
- Yanty Creek Marsh through Maxwell Bay

Braddock's Bay complex is a series of drowned lowlands which are now fronted by barrier beaches*. Following the Genesee River gorge, Irondequoit Bay is the next major feature to the east and is formed from the drowned valley of the preglacial Genesee River (Van Diver, 1985). From west of the Braddock's Bay complex to Irondequoit Bay, the nearshore lake environment is open and unprotected with relatively shallow offshore waters with either moderately or gently sloping bottom. Gentle slope areas indicate the presence of offshore bar complexes and front the Braddock's complex barrier islands and the area east of the Genesee River (Ray, et al., 1980). Progressing from Irondequoit to Sodus Bay to the east, the shoreline consists of a continuous bluff from 10 to 70 feet high and composed of silts and clays (Herdendorf et al., 1981a). Few wetland complexes are found along this stretch of shoreline with the exception of those found in association with small creek mouths. The nearshore lake environment is also exposed in this area with deeper water and a steeply sloped bottom (Ray et al., 1980).

Bedrock throughout this area is red sandstone and shale, except around Irondequoit Bay which is surrounded by Silurian* Clinton group sandstone, shale, and hematite (Van Diver, 1985). Surficial* deposits are of the Erie-Ontario Lowlands Geologic Province*, the largest and most continuous of the coastal surficial provinces. This geologic province extends from the western bound of the Focus Area to the Town of Ellisburg in Jefferson County. Surficial deposits in this area consist of glacial drift deposits, lacustrine* sediments, and the gravel beach ridge of Lake Iroquois. Within this portion of the focus area the surficial geology is dominated by lacustrine sediments overlaying glacial till that have accumulated between the inter-beach area defined by the historic shoreline of Lake Iroquois (approximately following the ridge along Route 104) and the current Lake Ontario shoreline. These soils are acidic with sandstone tending to dominate the mineralogical component of the till. These soils tend to develop fragipans* or impervious layers at depths of 18 to 30 inches which restrict internal drainage. (SLEOC in Herdendorf et al., 1981a).

Hydrology* of this region is strongly influenced by the glacial landforms with most drainage limited to small tributaries running at southwest to northeast angles across the inter-beach area lying between Route 104 and the current shoreline. The exception to this is the Genesee River, which does not include drainage from any of the Ontario lakeshore wetlands. Forest cover estimates lie between 15 and 33% (Andrle and Carroll, 1988). Most of the forest cover is elm - red maple and northern hardwoods forest, often occurring as a successional

northern hardwoods community type (see Reschke, 1990). Examples of dominant trees in the area include: red maple, sugar maple, American beech, white ash, basswood, shagbark hickory and hemlock.

Central Reach Description

Central Reach Characteristics

- extends from Town of Sodus in Wayne County east to Town of Scriba in Oswego County
- 28 evaluated sites totalling 7734 acres [3134 hectares]
- First Creek Marsh through Teal Marsh

The shoreline physiography changes at Sodus Bay where the drumlin topography dominates until Oswego, and then gradually diminishes towards the Salmon River. The area falls in the drumlins ecological subzone (Figure 1). The drumlins are prominent oval landforms with a general alignment that radiates from the Lake Ontario basin (Van Diver, 1985). Wetlands and bays exist between drumlins along the shore and can extend substantial distances inland from the Lake Ontario shore. Many of the drumlin formations front the Lake and are being truncated by wave action, forming a sharply varied pattern of bluffs and lowlands along the shore. The nearshore lakebed slope is moderate to gentle throughout much of this region (Ray et al., 1980). Two areas of deeper nearshore water depth and steep slopes are found at Oswego and at Port Bay.

Bedrock in this reach is comprised of red sandstone and shale along the shore, with portions of embayments and streams running through sandstone, shale and hematite inland from the Lake. Sodus Bay is surrounded by Clinton group bedrock which extends further north at this point than in adjacent areas. Bedrock just west of the City of Oswego changes to Oswego sandstone which carries through to the Salmon River (Van Diver, 1985).

Surficial deposits are of the Erie-Ontario Lowlands Geologic Province. Within this portion of the focus area the surficial geology includes some of the finest glacial till or morainic landforms of the Lake Ontario shoreline. Drumlins and inter-drumlin outwash plains are well expressed and glacial drift deposits are deeper than those generally found in other coastal areas. As in the western reach of the Focus Area, surficial deposits in this area consist of glacial drift deposits and lacustrine sediments, with lacustrine sediments overlaying glacial till in some areas. The gravel beach ridge of Lake Iroquois becomes indistinct in this area, merging with the dominant drumlin formations to the east of Sodus Bay (Van Diver, 1985).

Hydrology of this region is strongly influenced by the glacial landforms with most drainage limited to small tributaries and flooded embayments lying or coursing between drumlin formations. In general, the size of the watersheds associated with each of the Lake tributaries in this area is small, with many

streams running perpendicular to the Lake shoreline for distances of less than 20 miles. Streams here differ from the western region of the Focus Area as they are generally not effected by the historic Lake Iroquois shoreline. The major drainage in the area is associated with the Oswego River; however, little of the shoreline drainage finds its way into this system. Forest cover throughout this area is estimated to be as little as 25% to as high as 25% (Andrle and Carroll, 1988). Elm - red maple and northern hardwoods dominate the forest types.

Eastern Reach Description

Eastern Reach Characteristics

- extends from Town of New Haven in Oswego County east and north to Town of Henderson in Jefferson County
- 18 evaluated sites totalling 9620 acres [3893 hectares]
- Otter Branch Wetlands through Ray Bay Marsh

The shoreline physiography changes again east of Oswego where the dominance of drumlin fields diminishes and is replaced with the low slope of the Tug Hill tilted mesa which features very little relief near the Lake (Van Diver, 1985). The area is entirely within the eastern Ontario Plains ecological subzone which includes a lake-moderated climate (Figure 1). The flat relief and diminishing drumlins in combination with post-glacial flooding due to Lake level has led to a shoreline that features broad shallow bays fronting drowned creeks and substantial barrier beach complexes including remnant dune formations that are thought to have formed during the early post-glacial years when Lake Ontario had lower water levels (Department of State, 1988). These barrier beach - embayment formations form the eastern shoreline of Lake Ontario and show a nearly straight north-south orientation. The offshore area in the western part of this section within Mexico Bay is relatively deep with a steep bottom profile (Ray, et al., 1980). The area fronting the dune and bay portion of the eastern shoreline is shallower, featuring moderate and gentle slopes. The nearshore area fronting the dunes becomes progressively gentler to the north, suggesting the presence of significant offshore bar complexes. The characteristics of this area terminate abruptly at Stony Point where limestone outcroppings characterize the shore.

Bedrock is the most diverse in this section of the focus area starting with Oswego Sandstone throughout Mexico Bay, changing to siltstone and shale at the Salmon River, briefly traversing an area of black shale (which only underlies Cranberry Pond within the focus area), and changing to limestone for the remaining northern section of the Focus Area (Van Diver, 1985).

Surficial geology includes two provinces: the Erie-Ontario Lowlands Geologic Province and the Eastern Ontario Hill Lands Province. Within the eastern reach of the focus area, the pronounced glacial till or morainic landforms which characterize the central reach degrade into less distinct drumlins and inter-drumlin outwash plains, all generally aligned in a radial pattern from the Lake

Ontario basin (Van Diver, 1985). Glacial drift deposits remain deeper than those generally found in other coastal areas. Surficial deposits in this area consist of glacial drift deposits and lacustrine sediments, with lacustrine sediments overlaying glacial till in some areas. The gravel beach ridge of Lake Iroquois is generally indistinct or absent in this area. Lake bluffs east of Oswego are truncated glacial landforms. Many are eroded drumlins, while others are non-descript till deposits spread by glacial advance or recession.

The second geologic province, the Eastern Ontario Hill Lands Geologic Province extends from Cranberry Pond northward. The glacial drift of this area, where not removed by wave action, is high in limestone and shale fragments and is spread over bedrock in a mantle generally less than 10 feet thick. The Lake Iroquois inundation of this area deposited lacustrine sediments over glacial till in many areas. Significant amounts of sand and gravel fill the level inter-hill or inter-drumlin areas of the southern portion of the Eastern Ontario Hill Lands. This outwash, consisting of limestone, sandstone, and granitic gravel, grades to sand near the present lakeshore. Some areas of outwash are covered by a mantle of lacustrine silts (SLEOC in Herdendorf, 1981a).

Hydrology in this area reflects the extremely low topography, with fewer and larger tributaries draining larger watersheds which reach back to the Tug Hill plateau. These tributaries are generally cold water streams or rivers and vary in acidity according to their watershed characteristics. Flow in these tributaries is the most seasonal in the focus area owing to the greater snowmelt volume and the greater headwater precipitation which reaches the highest amounts in the state, up to 55 inches per year in portions of the Tug Hill. Estimates of forest cover range from 33 to 50%, with over 60% forest cover in the headwater areas of the Tug Hill plateau (Andrle and Carroll, 1988). This region is also dominated by elm-red maple and northern hardwoods forest types.

Land Use

Land use in the Focus Area is very diverse and includes intense urban development, suburban sprawl townships, second home cottage development, agriculture, low density rural residential housing, and relatively pristine landscapes.

The western reach includes the City of Rochester and associated suburban townships. Lands along and below the Niagara escarpment from the Niagara River through Wayne County support very productive vegetable and fruit farms. Most of the land near the shore had been cleared at one time for agricultural uses, and a substantial amount of land is either tilled each year for vegetables and grains, or supports orchard crops. From Rochester westward, the Lake Ontario Parkway, a four-lane highway, either traverses or skirts all of the lakeshore wetlands. The Braddock's Bay complex is largely under public ownership but is surrounded by residential development, several industries, and parkways. Within and around the City of Rochester, much of the land has been developed at relatively high density with very little retention of buffer areas or original vegetative covers. The Genesee River is the center of the urban core and is ringed by industrial and high density uses, yet retains some of its original natural cover due to the steep slopes of the gorge walls. Durand-Eastman Park is an urban park that provides the first and westernmost significant wooded

Focus Area Land Use

- Western Reach:
  - •substantial fruit, grain and vegetable farming
  - •natural vegetated buffer areas lacking
  - •forests and wetlands exist as small isolated 'islands'
  - •moderate to dense population levels
  - •dense waterfront housing and residential development
  - •intense recreational boating in many areas

- Central Reach:
  - •very concentrated fruit farming
  - •natural vegetated buffers lacking in western portion
  - •moderate population density
  - •waterfront development is mostly second homes and camps
  - •recreational boating wherever lake access is available
  - •highest tributary sedimentation loads in Focus Area

- Eastern Reach
  - •relatively sparse dairy farming
  - •dense shoreline development
  - •dominant marina, boating and fishing industry
  - •concentrations of rare species and communities
  - •coldwater tributaries
  - •largest wetland complexes
  - •large dune and barrier beach systems

landscape along the lakeshore within the Focus Area. Areas to the west of this point are sparsely wooded, providing small "islands" of forested lands.

The Irondequoit area includes medium density residential development and supporting highway infrastructure, and retains substantial amounts of woodland, approaching 50% of the landscape in many places. From this point eastward, the lake plain is a mix of woodland and agriculture, primarily orchards. Residential uses are found at low densities, and shoreline and bayside cottages are common where access to the water is available.

The central reach begins in Wayne County just west of Sodus Bay and extends just east of the City of Oswego to the Town of Scriba in Oswego County. This reach also features a gamut of land uses ranging from urban to rural. Many of the deeper, lake-flooded areas form bays which may be surrounded by privately-owned seasonal cottages or, in less developed areas, ringed by agricultural fields, fallow fields, or woodlands. The larger open bays such as Sodus and Port Bays, are more developed and receive relatively intense recreational use for fishing and pleasure boating and have significant densities of shoreline development. Many of theses bays also have wetlands at their southern extremities and in association with tributaries. The shallower lake-flooded areas support large wetland and tributary complexes that may or may not be directly connected with Lake Ontario. Many of the wetlands along the bays and lakeshore in this reach

of the focus area are under state ownership and are administered as wildlife management areas or waterfowl refuges. A significant difference between this reach and the western reach of the focus area is the relatively high amount of woodland adjacent to the shore and throughout the watershed of this reach. Approaching Oswego, the density of development increases, first with cottage development and then with suburban development. As density of development increases, each of the lakeshore wetland areas becomes more isolated and fragmentation of the watershed increases until the area becomes an "island refuge". Within the City of Oswego, the urban core is centered on the large, sheltered harbor and the Oswego River which features substantial recreational boating use along with industrial and port uses. East of Oswego, land use returns to lower densities but continues to include higher numbers of residences, cottages and water-related commercial activities where access to the lake is available. Agricultural uses near the shore are less prevalent in the eastern portion of this reach, although substantial muck farming operations are present in the Oswego lowlands area.

The eastern reach of the Focus Area begins in the Town of New Haven in Oswego County and extends to the northern terminus of the Focus Area in the Town of Henderson in Jefferson County. The entire area is rural in character with a number of commercial operations depending on boating or other recreational uses related to the lake. Density of development in this area is on average lower in comparison to the western and central reaches of the focus area; however, the intensity of uses including marina, camps, and cottage developments may approach concentrations that would be expected in more urban areas. This is due in part to the development activities that followed the establishment of an artificial salmonid fishery and in part to the overlapping spheres of influence from Syracuse, Oswego, Watertown, and Rochester that converge on the remarkable natural resources found within this reach.

This reach has the largest wetlands and embayments in the Focus Area, along with a high number of rare species and natural communities. These large wetland complexes are fronted by an almost continuous 17 mile long barrier beach and spit complex that features the largest dunes in the state. Development of private lands along the barrier beaches and spits is dense, with continuous rows of camps or cottages that primarily receive seasonal use. Public ownership is substantial in this reach with 60% of the shoreline and wetlands between the Salmon River and Stony Point administered as either state parks or wildlife management areas (NYS Department of State, 1988). Small villages are located inland from the lake, and are usually positioned on tributaries. Active agriculture is not as dominant as in the central or western reaches of the Focus Area. Agriculture along the eastern end of the Lake is more likely to be dairy than fruit and vegetable farming, and is often set back from the shore or associated wetlands. The area is largely forested with many former agricultural uses reverting to old fields and second growth forest.

Influence of Lake Levels

Lake levels are clearly the most important natural factor influencing the habitat value of the lakeshore marshes, however, the degree of importance of lake level for any particular wetland or bay depends on the hydrological connections between the lake and the wetland or bay. Bays which have large inlets open to the lake

are obviously highly dependent on lake level while wetlands and bays fronted by porous barrier beaches do not vary as directly with the lake. A third type of wetland embayment system is only open to the lake periodically during periods of high spring runoff which temporarily breaches the barrier beach. The nature of the hydrological dependance may also affect the type of wetland vegetation present and the habitat value of the area.

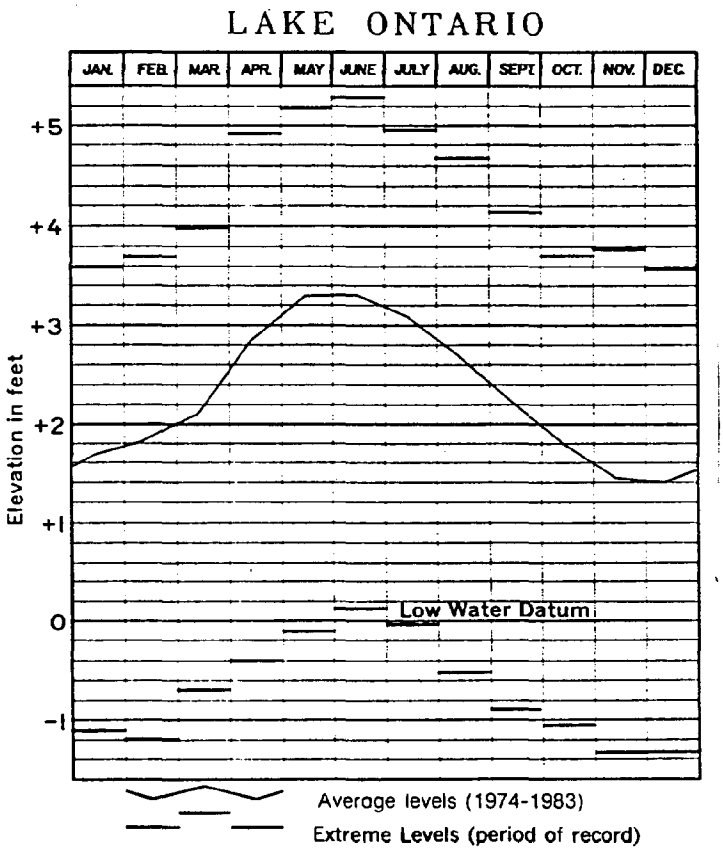
As noted in the project area description, the origin of all of the lakeshore wetlands is based on water levels of Lake Ontario. Following the retreat of the last glacier, land along the northern side of Lake Ontario increased in elevation relative to the southern shore, rebounding after the crust-depressing weight of the glacier was removed. The southern lakeshore wetlands have been linked to the lake ever since, making these wetlands unusual in comparison to traditional upland palustrine* wetlands. Water level in most of these lakeshore wetlands varies directly with the level of Lake Ontario if an inlet to the lake is present, and indirectly if drainage is based on seepage to the lake. These wetlands behave differently from traditional upland palustrine systems which undergo classic senescence* from open water to peat uplands. Long term and seasonal water level changes act to rejuvenate these lakeshore wetland communities through erosion, flooding and plant die-off, and lateral displacement of vegetative zones (Herdendorf, 1981a).

Lake Ontario undergoes seasonal and long term variations in water level. Recent water level records indicate the average seasonal fluctuation is just under two feet with the low water period running from November through February and high water running from April into July (Figure 2). Over a ten year period (1974-1983) water elevations have been as high as five feet over the low water datum and as low as minus one foot below the low water level datum, producing a total range in recently observed water elevation change of over six feet (Figure 3). The maximum observed water level change of over six feet would not be observed over a single annual or seasonal cycle. The seasonal water level cycle overlays the long term water level base so that high or low water levels tend to dominate throughout a given year or series of years.

Longer term water level changes have had and continue to have the potential for tremendous effects on the lakeshore marshes and their use by fish and wildlife. Long periods of relatively low water have adversely affected habitat values by reducing available open water areas, reducing available waterfowl nesting and fish spawning sites, decreasing water interspersion and diversity, and promoting monotypic stands of vegetation in some areas while favoring propagation of exotic species in others. One benefit associated with periods of low water is a shift towards sedge-dominated wet meadow areas which may provide important nesting cover (Lewis and Hamilton, 1981). A period of low water experienced between 1979 and 1983 led to increased interest in water level control structures that would maintain minimum water levels in many of the publicly-owned wetlands. Benefits afforded by potential efforts are generally not felt to be substantial as lake hydrology tends to make water levels in the wetlands uncontrollable.

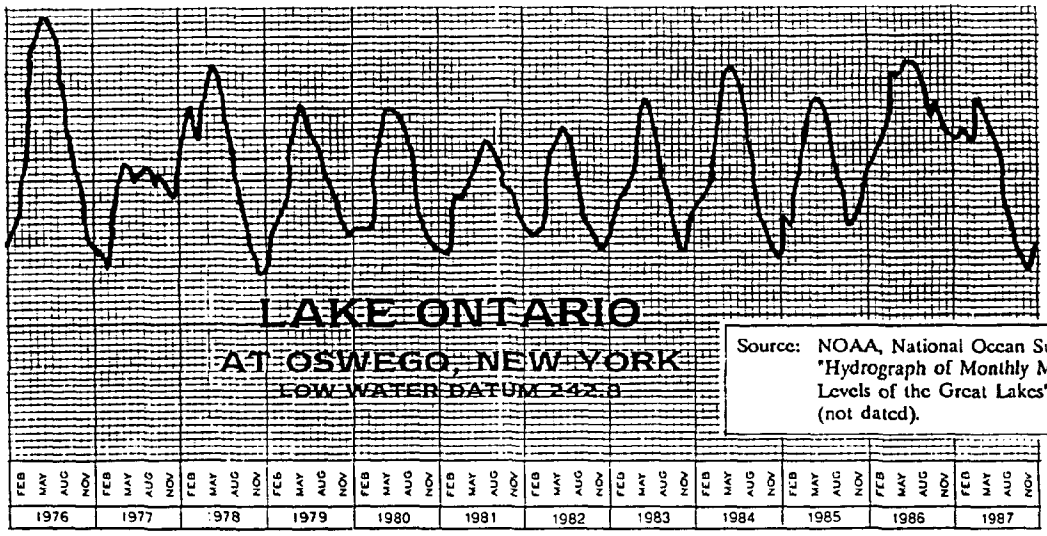
Similarly, a period of high water was experienced between 1986 and 1989 which altered the habitat values associated with the lakeshore wetlands. In addition to eliminating beaches and eroding bluffs and dunes, the high water tended to

Figure 2. Seasonal waterlevel fluctuations in Lake Ontario (NOAA chart # 14802).

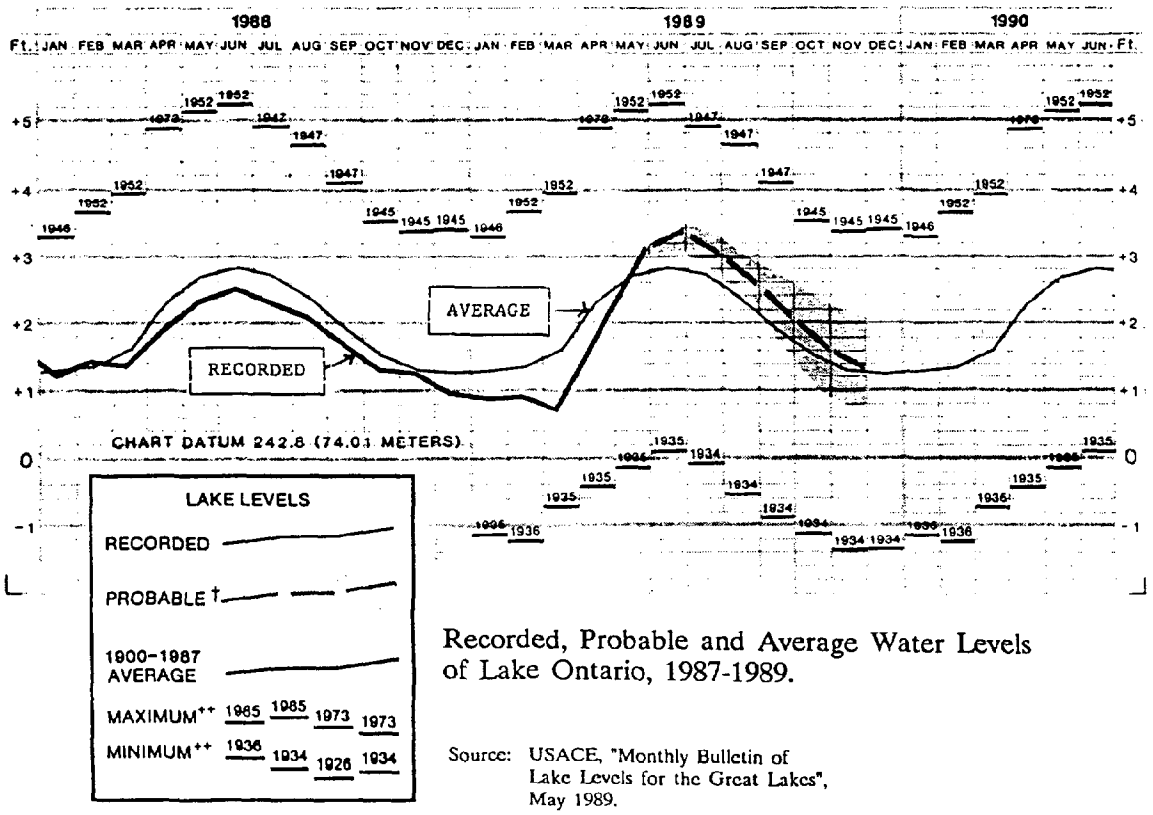


Low Water Datum, which is the plane of reference for the levels shown on the above hydrograph, is also the plane of reference for the charted depths. If the lake level is above or below Low Water Datum, the existing depths are correspondingly greater or lesser than the charted depths.

Figure 3. Average monthly waterlevels in Lake Ontario (NYS DOS, 1988).



Relative Mean Water Levels of Lake Ontario from 1976 Through 1987.



Recorded, Probable and Average Water Levels of Lake Ontario, 1987-1989.

Source: USACE, "Monthly Bulletin of Lake Levels for the Great Lakes", May 1989.

flood many potential waterfowl nesting sites, and may have favored development of vegetative (cattail) monocultures in some areas. Traditional migratory stops for shorebirds were unavailable since rocky shores and mudflat areas were not exposed during August migrations. Nesting by vulnerable species* such as common and least terns at North Sandy Pond was also curtailed by flooding. Positive aspects of high water included retarding invasion of exotic plant species, rejuvenating wetlands through flooding, increasing interspersion of water and higher habitat diversity in some areas, and increasing amounts of open water.

Although these periods of relative low and high waters create difficulties in managing or even predicting habitat values for the lakeshore marshes, the average annual cycle of water levels may also provide optimal habitat values. Seasonal high water is normally established by late April to early May, and are sustained through June, only beginning to recede in July. This seasonal water regime corresponds to waterfowl nesting needs and is also optimal for coolwater and warmwater fish propagation. If the long term conditions approach normal levels, then the lakeshore marshes may tend to be at their highest habitat values. Lake Ontario is the only one of the Great Lakes that has a seasonal water elevation cycle which comes close to corresponding with waterfowl and fish reproduction needs. Thus, management of Lake Ontario's seasonal cycles offer an important opportunity for optimizing wetland values throughout the Focus Area.

Project Area Description Glossary

barrier beach- elongated formations of sand and other unconsolidated sediments found along side the shore or close to and parallel to the shore
drowned river- glacial river now covered by higher water levels
fragipan- impervious soil layer often underlying wetlands
geologic province- a sub-region with common geologic features
glacial rebound- increased elevation from galcial recession
glacial till- unsorted deposits of sand, cobbles, and boulders left by glaciers
hydrology- describes the way water is distributed in the landscape, as expressed by lakes, streams, groundwater, and precipitation
lacustrine- of or pertaining to lakes
palustrine- having to do with upland wetland systems (e.g. swamps, marshes, bogs)
physiography- a description of the physical features of the landscape
piscivorous- fish-eating
senescence- the aging of a wetland from open marsh to peat uplands
Silurian- of the geologic period of ca 400 - 440 million years ago
surficial- a geologic term relating to glacial deposits found at the earth's surface above bedrock formations
vulnerable species- state-listed endangered (E), threatened (T), or special concern (SC) species. Abbreviations in parentheses are used throughout text.

METHODS

Study Area Boundary Determination

A boundary was established which would clearly define the Lake Shore Marshes Focus Area and include most of the major wetlands and embayments associated with Lake Ontario. The Focus Area extends from just west of Rochester, follows east along the shore through Oswego and Mexico Bay, turns north at the mouth of the Salmon River, follows along the Ontario sand dunes, and ends at Stony Point.

The specific boundaries are shown on Figure 4 and are described as follows. The western boundary starts at Hamlin Beach State Park in the Town of Hamlin, Orleans County. The offshore boundary in Lake Ontario extends approximately 1000' from the principal shoreline. The inland boundary was drawn to encompass most lake-associated hydrologic features and generally follows the coastal area boundary. Where the coastal area boundary followed topographic or political features, the Focus Area boundary was aligned with the more readily identified adjacent roads. Major inland boundary roads from west to east are state routes 104, 104A, and 3. The northern boundary ends on Stony Point, immediately to the south of Henderson Harbor.

Selection and Resource Descriptions of Individual Study Sites

Identification of individual study sites was based on a general review of hydrologic, geographic, significant coastal habitats, and wetlands information. Topographic and wetlands maps were used in this initial review to identify 65 distinct sites for further evaluation. Sites were named using topographic place names and municipalities were identified.

For each of the identified sites, existing information was compiled and tabulated on individual data forms (Figure 5). National Wetlands Inventory maps were used to estimate area and cover type for each site. An acre grid was used for area estimates and totaled within each study site. The composition of each study site is expressed as a rough percentage of each of the following cover types: open water, emergent wetland, shrub-scrub wetland, forested wetland or swamp, and mixed or high interspersed wetlands. Upland or watershed areas were not evaluated or quantified as part of the resource description.

Classifications and codes for state-regulated wetlands are provided for each site. Vulnerable species information, which includes records for endangered, threatened and special concern species, is also listed. Species information is complemented with rare community records, and both Natural Heritage Program global and state ranks and element occurrence ranks are provided (see appendix A1). Additional general information was compiled for each area from the following sources: breeding bird atlas, significant coastal fish and wildlife habitat narratives, Natural Heritage Program records, listed vulnerable species records, wetland maps, and focus area planning team members. Many of the Focus Area sites have been designated as Significant Coastal Fish and Wildlife Habitats by the NYS Department of State. These designated habitat areas are afforded additional protection through environmental review of state and federal actions (Hart and Milliken, 1991). Although information on waterfowl use was compiled when available, the information collected was not restricted to waterfowl.

Figure 4. Map of the Lake Shore Marshes Focus Area.

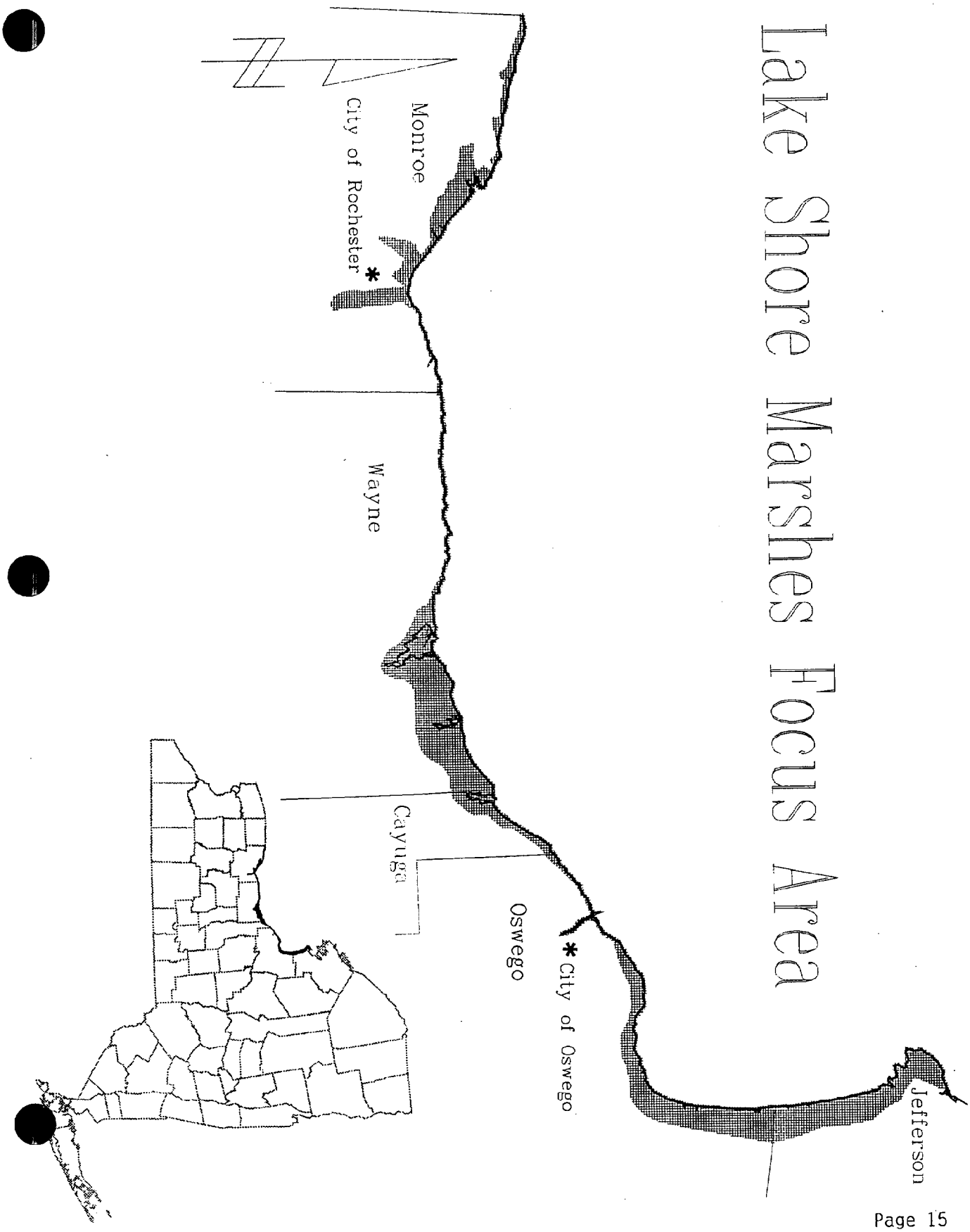


Figure 5. Sample Site Assessment Form.

MAP REFERENCE
Site Reference

Resource Inventory

Site name (topo):

County: Town:

Characteristics
cover types: open % emergent % shrub % forest % mixed %
general description:

Importance
wetland classification:
vulnerable spp. (name and status)
heritage rank and EO: G S EO

Comments:

Habitat Value Impediment Checklist

Physical loss
____ fluctuation in water levels
____ conversion of wetland: dredging, fill, construction
____ conversion due to community succession or sedimentation

Degradation
____ impoundments or alteration of flushing rates
____ point and non-point pollution and nutrient loads
____ municipal point sources & CSO's
____ industrial or private point sources
____ agricultural: fertilizer, pesticides, pasturage
____ road runoff and storm sewers
____ heavy metals (shot, sinkers, other sources)
____ wetland alteration; channelization; hydrological changes
____ exotic species invasion
____ conditions favor disease outbreaks (eg., botulism)
____ loss of buffer areas and riparian vegetation

Functional loss
____ recreational use of area excludes nesting or feeding
____ overuse
____ inappropriate access
____ marina development
____ adjacent residential development
____ introduction of predators with residential development
____ other uses impair or disturb habitat

Lack of habitat element
____ habitat diversity low
____ cattail monocultures
____ scrub-shrub dominance
____ impaired nesting habitat

Strategies

management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
adjacent buffer areas
shallow pond construction
point source reduction

Assessment:

Habitat Evaluation

Once information regarding each area was compiled, an approach that would facilitate appropriate coupling of management strategies with resource protection and enhancement needs was followed. The first step in this process was to identify resource protection and enhancement needs through identification and assessment of major sources of habitat impediment. Four major categories of habitat impediment were identified: physical habitat loss, degradation of existing habitat elements, functional loss of habitat, and lack of habitat elements for particular species use. Each of these categories and accompanying specific concerns are listed in the sample site form (Figure 5).

Physical habitat loss - a physical loss of habitat is often the most obvious habitat impediment to identify. In the Lake Ontario shoreline wetlands, physical loss can involve wetland fill, wetland dredging, and changing hydrology through linear fills across wetlands such as for roads. Another kind of physical loss of habitat occurs through changes in Lake Ontario water levels. Periods of below normal water levels reduce water interspersion in wetlands, lead to proliferation of exotic invasive species, and reduce the amount of both open water and wetlands. Periods of prolonged high water can lead to the loss wetlands through excessive flooding and erosion.

Degradation of existing habitat elements - Degradation of habitat elements occur when conditions in the bays, wetlands, adjacent uplands, or watershed lead to a loss of habitat values. These conditions tend to result in a physical alteration of the area through such processes as siltation, plant succession, and pollution.

Functional loss of habitat - Functional habitat loss tends not to result in physical changes to the area, but are related to uses that can lead to loss of habitat values. The response by fish or wildlife may be a behavioral avoidance of the area due to disturbance.

Lack of habitat element - Some areas lack particular habitat elements that limit the use of the area by a particular fish or wildlife species. In the case of waterfowl nesting, wetland vegetation and open water elements may not provide valuable habitat if another habitat element is missing such as dense nesting cover. The lack of a particular element for one species, however, may be a required element for another species. An example of this occurs in the focus area where important waterfowl habitat elements are missing in rare acidic fen communities. Although these areas do not provide waterfowl habitat values, they do support important rare species which arguably have substantial importance.

Draft evaluations of habitat impediment for each site were conducted using existing resource materials, field reconnaissance, and local expertise. The scope of the evaluation was expanded to consider adjacent and watershed land uses in addition to characteristics and uses within each study site. This analysis relied on compilation and analysis of information derived from: topographic maps, helicopter overflights of the entire focus area by the focus team members on April 25 and June 10, 1991, interviews of local knowledgeable personnel, reviews

of significant coastal habitat narratives, oblique aerial 35mm photography and video records, 1979 vertical aerial photography at a scale of 1:12,000, water quality information from the rotating intensive basin studies, field investigations, and site specific studies and reports. In addition to considering habitat impediments for each site, the draft evaluations also postulated the type of ecological and habitat values that each area may provide. Draft evaluations were compiled for each of the study sites and provided to focus area team members for review.

Final evaluation of the study sites relied on a team review and analysis of each site based on the information presented on the draft summary sheets, oblique aerial slides and video, topographic maps, and 1979 vertical aerial photos. For each site, team members reviewed habitat elements, discussed sources of habitat impediment, and identified appropriate protection and management strategies.

Evaluation of Potential Management Strategies

The focus area team reviewed potential management strategies that may be applicable to the specific resources and conditions that were known to exist within the Focus Area. These resulting management strategy descriptions and their potential application to the Focus Area presented in the following section.

SPECIFIC STRATEGIES

Ecological Management Plans

Successful protection and management of specific areas which support significant natural resource values is difficult to achieve through regulatory reactions and piecemeal decision-making. Ecological management planning offers a strategy which is based on sound ecological principles and resultant recognition of appropriate levels of use. Management plans could be cooperative ventures between different levels of government to address an area that may include both private and public lands, or management plans could be narrower in addressing single parcels in public ownership such as town lands or state wildlife management areas.

Management plans should begin with an inventory and mapping of ecological communities present on the parcel and may include additional factors which could constrain certain uses. On publicly-owned parcels, mapping and analysis of broad community types can directly lead to the identification of use zones that could either promote, discourage, or prohibit human use. Promotion of human use might include provision of public access and associated support facilities such as parking. Zones that would discourage human use can often be achieved by deciding not to provide convenient access in certain areas that may have generally higher and somewhat sensitive resource values. Prohibitions on human use might include active fencing, barrier construction or seasonal posting for sensitive areas such as waterfowl nesting sites.

Examples of this type of ecological management planning can be found in the Provincial Park System in Ontario, Canada, and in some of the unit management plans in the Department of Environmental Conservation (Ontario Ministry of Natural Resources, 1986; Department of Environmental Conservation, 1990). This type of planning effort is desperately needed for some of the Focus Area sites where active management could lead to inadvertent loss of existing habitat values.

Land Protection

Traditional land protection strategies are normally directed at preventing the loss of important natural resources to a variety of development threats. Development threats usually include significant alteration of the landscape or parcel that contains the natural resource values or may include alteration of adjacent areas. Development has the potential to destroy natural resource values if the location or timing of these activities is in conflict with the resource.

Landowners need not be restricted to working out a land protection deal with a state or federal agency, as there are many well qualified private conservation organizations that possess expertise and flexibility in tailoring a protection deal to suit all of the landowners needs. Some of these land protection options can be financially advantageous to landowners. There are many possibilities, and below are brief explanations of the conservation tools mentioned above as excerpted from The Landowner's Options (Milne, 1985).

Fee title acquisition The most obvious and most expensive way to protect land

is through fee title acquisition where the ownership of the property is transferred to a conservation entity, such as NYS DEC, USFWS, Audubon, Nature Conservancy, local land trusts, and local municipalities. Due to the high cost involved, acquisition should only be directed at areas with extraordinary natural resource value. These high quality habitat or resource areas should have management plans that define the policies and management actions that will protect the underlying resource values. Within the focus area, acquisition should be offered as an option to willing sellers and, in general, should not be pursued through condemnation proceedings. An exception to this occurs when there is no other protection option available in the face of an impending loss of the site's resource values, or as a means to clear title.

Other property transfer methods In addition to acquisition through market-value, cash purchase by a conservation entity, landowners can transfer property through a variety of means which can protect natural resources and provide benefits to the landowner. Some of these methods are: donations of partial interest, bargain sales, gifts of land, and bequests.

Donations of partial interest can be advantageous if the donor's property has high monetary value. The doner-landowner can spread out the tax deduction of the full value of the donation over several years rather than being limited to one tax year. Donations are feasible when the doner has substantial income from other sources to offset and wishes to retain an interest in the property.

Bargain sales are sales to conservation agencies that are below fair market value. The landowner can benefit by claiming tax deductions for the difference between the sale price and the market values. Bargain sales are obviously more attractive to a conservation agency and also offer the landowner a cash return.

Outright gifts of land transfer complete ownership to the recipient conservation entity. Gifts to government agencies or qualified nonprofit groups are tax deductible. Bequests are also treated as gifts and often can reflect specific wishes and sentiments of the owner.

Options retaining land ownership Other land protection methods are available where the landowner retains ownership of the land. These methods include conservation easements, management agreements, leases, mutual covenants, and deed restrictions. These methods are useful for either direct protection of significant resource areas or for protection of adjacent lands which buffer resources from the effects of potential or existing development. These methods are generally best used to preserve resource values where management of the resource is enhanced by the presence of a private owner; this is often the case where public ownership of the same parcel could lead to public uses that may have deleterious effects on the resource.

Conservation easements are legal means by which landowners voluntarily set permanent limitations on the future use of land. The landowner can still use the land and can still sell it. If the land is sold, it remains subject to the terms of the easement. Conservation easements may be claimed as a deduction on federal tax returns to the extent that they have

limited the value of the property. Conservation easements may also be sold to conservation entities at agreed-upon pricing.

Mutual covenants also put limitations on the use of land. These differ from easements in that a group of landowners enter into an agreement without a conservation agency. Covenants may not be permanent in that a developer may buy all parcels involved with a covenant and then dissolve it. If one landowner remains, however, then the covenant also survives. This approach is most useful when a group of landowners recognizes that preserving their "community" is most important.

Long-term leases are another option of the landowner. Leases can be written with restrictions. If the conservation agency does not observe the restrictions the lease could be terminated. This option provides an alternative for those who wish to keep their land but who want to see it protected or used by some conservation group for a period of years.

Deed restrictions can be placed in the deed at time of transfer. These restrictions may not be as effective as easements since there is no enforcing party other than the buyer unless the seller retains some property adjacent to the restricted property.

Management agreements are legal agreements that allow the landowner to retain the property while a qualified conservation entity "manages" the property to protect or enhance a particular wildlife resource or vulnerable species' habitat. Management agreements can be renewed or rescinded on a periodic basis. Management agreements can also be used to articulate or coordinate management of adjacent parcels which may be under different ownership, such as between state and town governments.

Each of the above methods of land protection involves substantial effort and commitment of the involved parties. Often it is difficult to find an organization that may be interested and committed to protection of resources within smaller communities. Land trusts have begun to fill this role at the county and local levels, and are beginning to be an integral part of land protection in New York State.

Land trusts are private, nonprofit organizations devoted to protecting land in particular locales, usually towns and outlying regions. Funds are generally raised through dues, contributions, grants, and special events. Land trusts hold land or easements for a wide variety of conservation purposes including environmental education, scenic enjoyment, watershed protection, recreation, habitat preservation, agriculture, and historic preservation. Landowners who share their conservation goals with others in their communities often find land trusts an attractive way to achieve their objectives and to build local support for preserving open space.

Habitat Management and Restoration

Habitat management and restoration activities recommended for the Lake Shore Marshes Focus Area include artificial nesting structures, beaver management, dense nesting cover enhancement, exotic species control, water level controls, rare species management, increasing structural diversity, shallow pond construction, restoration or reclamation of wetlands, limiting any active management, and suggesting research prior to active management. These strategies are not listed in order of importance; the following order is based on the strategy list order found on the site evaluation forms.

These recommended management efforts are intended to maintain or enhance existing habitat values. Specific values that these management activities may lead to include increasing waterfowl production; enhancing the value of staging and feeding areas for migrating and wintering waterfowl, shorebirds, and passerines; protecting the unique values of vulnerable species and rare natural communities; and, preserving especially pristine examples of habitats.

Artificial nesting structures can be used where wetlands may provide adequate duck brood habitat and food sources, but are lacking natural nesting sites. Wood duck nest boxes and mallard tripod nest baskets are two types of artificial nesting structures which have been used with some success throughout New York State. Artificial nesting structures can also be used to benefit other species. Black tern, a species of special concern in New York State, have used artificial floating platforms as nesting sites; the potential for providing artificial nesting sites for this species should be further evaluated. In addition, nesting programs for song birds and raptors could also be encouraged. Artificial nest programs can be beneficial for many species, but just as important, are often enthusiastically received and carried out by the public.

Beaver management may be a cost effective way to create and enhance habitat values for waterfowl and other wetland wildlife. Beaver-flooded stream corridors and wooded areas are directly beneficial to American black ducks and wood ducks which prefer nesting in remote wooded wetlands and beaver ponds. High beaver populations, however, can lead to concern with flooding of agricultural croplands, roads, and even residential areas. Beaver Management requires a balance between habitat creation and impact on existing human uses. Common practices for beaver management now include trapping, measures to stabilize dams to hold water at acceptable levels by replacing natural dams with permanent dams, installing beaver boxes which hold dammed waters at relatively constant levels, or by removing problem individuals.

Dense nesting cover (DNC) consists of fields of tall, stiff-stemmed grasses that provide suitable nesting habitat for waterfowl and other ground-nesting birds. This strategy includes promoting appropriate grasses, sedges and rushes adjacent to wetlands to enhance waterfowl productivity. Often areas that do not provide DNC are either shrubby old field communities, tilled land, or pastures. Shrubby areas can be managed for grassy species through mowing or controlled burning. Pasturage and tilled fields would need setbacks to create buffer areas which can be planted with beneficial tall grass species. DNC areas should be located immediately adjacent to wetlands since most ground-nesting waterfowl select nest sites within 100 yards of the water's edge. Providing DNC has the additional

benefit of enhancing water quality by establishing filtration buffers which absorb and improve overland stormwater runoff. Establishing DNC areas in active farmlands obviously requires cooperation of the landowner. Setbacks in cultivated land adjacent to streams and wetlands may qualify for compensation under the federally-funded Conservation Reserve Program (CRP).

Exotic species control is recommended to prevent certain wetlands from losing habitat values and natural character. Targeted species include purple loosestrife, phragmites, and water chestnut. Water chestnut should be vigorously controlled in the focus area since invasion by this species appears to be limited to only a few locations in the focus area at present. Purple loosestrife is a priority target species for control efforts due to the existing extent of invasion throughout the focus area. Loosestrife can be successfully controlled through the manipulation of water levels, although this may be undesirable in most wetlands due to the resultant loss of other important habitat values through flooding. Manual removal of loosestrife is often the safest and most effective means of control, provided its presence is not too extensive and the removal program continues on a yearly basis. Other methods of exotic species control might include biological controls and timing control efforts to make use of natural flooding regimes. Unchecked populations of exotic species such as purple loosestrife may seriously degrade wetland values by changing the plant community composition to the extent that both wetland diversity and habitat use are significantly reduced or altered.

Water level controls may be recommended for areas that have experienced alteration of hydrologic regimes. Typical examples found in the focus area include flow constrictions due to roadbed crossings, inadequate culverting, drained areas, and severe water level fluctuations due to temporary damming at constrictions. Prior to implementing water level controls, a thorough understanding of the area should be obtained through hydrologic analysis. The level of analysis may be minimal in some cases (such as for elimination of culvert blockages) to more extensive analysis (such as an evaluation of dam placement or existing roadway effects).

Water level control proposals should be restricted to addressing restoration of natural hydrologic regimes. Proposals which seek to combat the influence of lake level changes have generally failed in the past and additional proposals of this nature are not recommended in this plan. Prior efforts at Lakeview WMA and Wolcott Creek Marshes stand as testimony to the ill-advised nature of artificial water level control efforts. Other than removing or stabilizing blockages, opportunities to restore natural water levels are unusual. One example is found at East Bay where conditions for water level control appear to be ideal and small dams can be used to effectively restore natural water levels to conditions that would be present if the East Bay barrier beach was not opened to the Lake for boat access. Another type of water level management that may be useful in the focus area is moderating wide water level fluctuations at sites which are susceptible to sudden barrier breaches. Physical intervention to create temporary connection to the lake may be desirable in limited instances.

Efforts to control water levels throughout the focus area should be directed at regulating Lake Ontario's water level to reflect the natural seasonal cycle of spring high water and summer release to provide maximum benefit for both fish and

wildlife. The effects of lake level control are likely to far outweigh all other water control efforts in the focus area.

Rare species management. Areas supporting rare species require special consideration in management and regulation. At a minimum, activities proposed at sites known to support endangered, threatened, or special concern species or rare natural communities must not jeopardize these resources. These sites may require proactive measures for protection of these resources which may preclude or greatly modify other management considerations. As an example, West Lake Road swamp had been one of the most important black tern nesting habitats in the state in the 1950's, but following water level controls for waterfowl enhancement, this habitat value was lost in exchange for what is now relatively unimportant waterfowl habitat. Often rare species management simply means doing nothing at a site. In instances where the biology of a species is better known, active management can be used, such as providing floating nest platforms for black terns. Monitoring population levels and limiting human use may be the best management strategy for these important components of the Focus Area's biodiversity. For sites with rare species or communities, primary consideration should always be directed at protection of these resource values over other objectives, including waterfowl management. In all cases, an inventory of the area should be conducted before any active management is undertaken.

Increasing structural diversity is a habitat management strategy targeted towards wetland areas that have developed monotypic features, such as solid cattails with little or no interspersion of water or other structural components. Management efforts may include creating islands, potholes or small scale level ditching using non-linear patterns to create more 'edge' per unit area. Any alteration of wetlands should simulate natural conditions such as sinuous channels and hummocks; straight channels with continuous sidecast banks are not acceptable. Before any structural alteration of monoculture wetlands is pursued, other factors should be considered. No alteration of areas of floating cattail mats are recommended since undesirable fragmentation of the wetland under high water conditions could result.

Shallow pond construction in adjacent upland is a strategy that can achieve several habitat objectives through a single action. Constructed ponds would serve as loafing and feeding sites during migration and as loafing sites for male ducks while the hen is incubating nearby. In order to provide anticipated habitat values, these ponds must include suitable nesting cover in the adjacent area. Emergent or shrub cover around the pond margins also serves as brood rearing and escape cover, and provides an essential buffer from nearby activities. Ponds also provide feeding habitat for marsh wading birds, shorebirds, passerines, and small mammals. This strategy may be best applied in areas where open water is limited within the wetland due to cattail or shrub dominance.

Restoration and reclamation opportunities exist at sites that have been degraded through fill, dredging, or flow restriction. Projects as simple as fill removal or retrofitting a road crossing with an adequate culvert directly improve the habitat values of a wetland.

Passive management is a strategy to choose for places that are relatively pristine, undisturbed, high quality habitats. Active management in otherwise undisturbed areas may result in inadvertent loss of habitat values rather than enhancement. Often these areas provide excellent habitat values due to their lack of disturbance; active management has the potential to undo the natural state of these areas and is not recommended. Protection of adjacent areas and tributaries to these areas is especially important and may require active management or land protection strategies.

Research prior to action is a management strategy to be used where there is a lack of information of baseline data for specific sites. Management activities may result in inadvertent loss of habitat values rather than the intended enhancement. In these cases it may not be sufficient to rely solely on a planning analysis to determine the appropriate management approach. A significant scientific effort may be required to gain an adequate understanding of existing functions and likely effects that could result from particular actions. Research programs should express results in a form that can be factored into a comprehensive planning process to direct the management of the area.

Public Use Management

Without thoughtful management of public uses, many other habitat improvement measures may not be successful, with the worst case scenario being severe degradation of habitat values despite all other measures. Suitable physical environments may be available, however, habitat values associated with these areas may be minimal due to human use. Public use can be a limiting factor on the quality of available habitat. With proper use controls, a reasonable balance of habitat protection and recreation can be achieved throughout the Focus Area, but exclusion of some human uses may be required in certain areas to achieve an overall balance. Conversely, it is important that well-designed public use is provided in appropriate areas so that the public has opportunities to enjoy and benefit from fish and wildlife resources. Areas that provide opportunities for programmed environmental education or nature studies are particularly successful in conveying important lessons in land stewardship and habitat values. These areas are also often cited as tourist destinations, providing economic benefits to local communities.

Enhancing human use. Interpretive signage and other educational materials can be developed to increase public awareness of the lakeshore habitat values and to provide a unique learning opportunity for area residents and visitors. This strategy is also intended to promote the development and distribution of educational materials to encourage the general public to practice responsible stewardship on their own land. For instance, how-to brochures on managing lands for enhanced environmental quality along with identification of technical assistance sources for interested landowners can provide an important message for the protection of these areas.

Siting, construction, and maintenance of trails and boardwalks is needed to provide adequate access for hands-on nature study in appropriate areas. Several sites exist within the Focus Area for development of an interpretive educational facility that could include nature trails, boardwalks, and programs that could increase responsible public uses in an environmentally sensitive manner.

Limiting human use. The last use management strategy identified for the Focus Area is limiting human use or access to areas that are too sensitive to withstand uncontrolled human use. Areas which have not experienced significant disturbances should remain undisturbed. Often such sites already have significant deterrents to public access such as adjacent private land ownership, distances from public roadways, surrounding dense vegetation, or lack of awareness of the resource's existence. Management activities which would contravene the effectiveness of these activities should not be pursued. Public access at sensitive areas such as nesting sites should also be restricted to protect the habitat value of these locations. A useful approach is to use species biology to define the most vulnerable periods in the life cycle of rare or important species and devise corresponding restriction schedules. Restrictions can then be limited to relatively brief time periods and may only require symbolic fencing or temporary posting as a refuge.

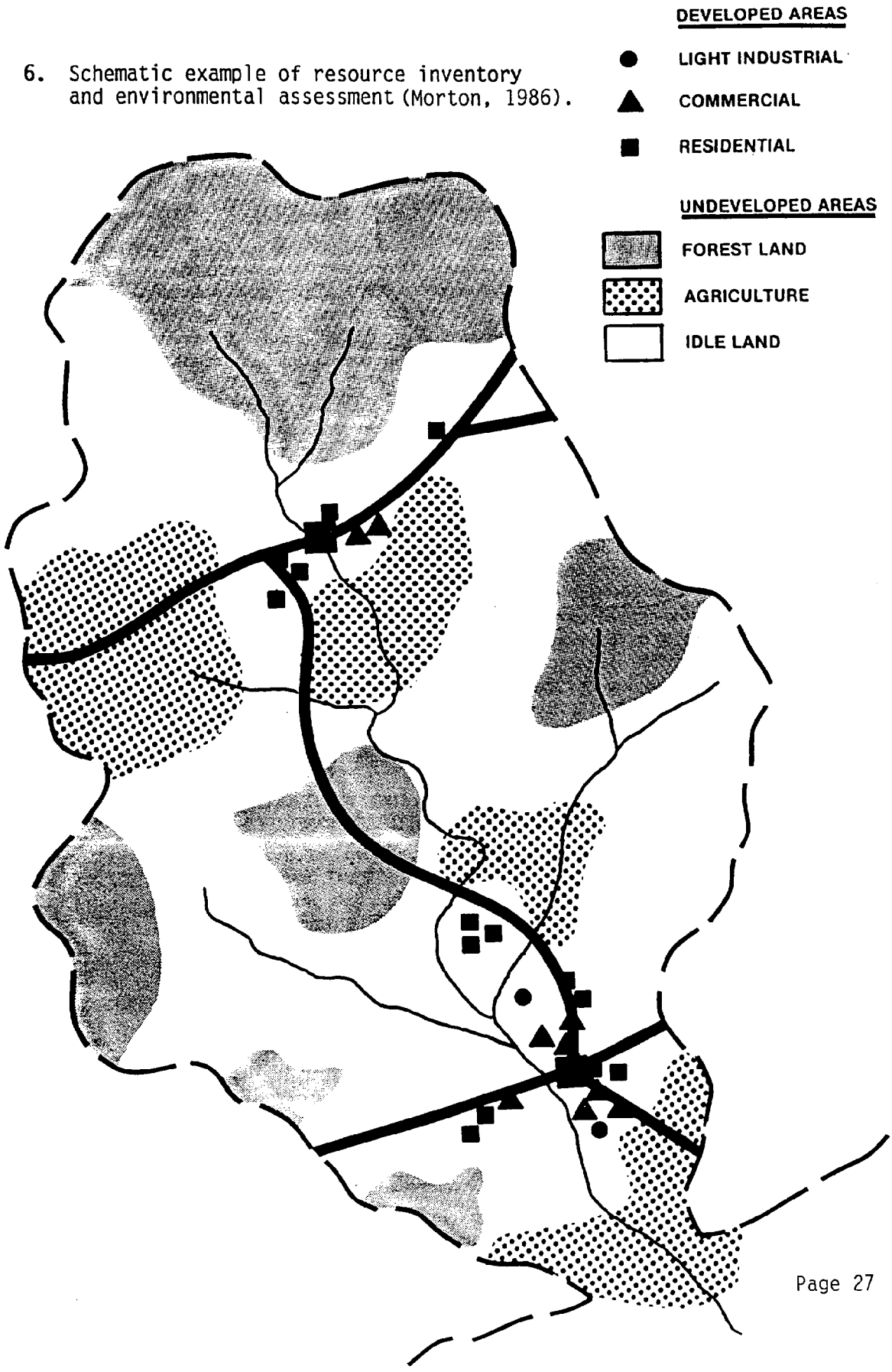
Water Quality Improvement

Water quality improvement strategies recommended for the Lake Shore Marshes Focus Area include watershed planning, riparian corridor buffer establishment or protection, adjacent buffer area establishment or protection, retention pond construction, and point source reduction. These water quality improvement strategies are needed to maintain and more often, to eliminate a cause of habitat impediment. Most coastal watersheds feature excessive nutrient loads, high sedimentation rates, and the presence of toxic pollutants. These strategies can assist in controlling these pollutants, with the direct benefit to the fish and wildlife species using the identified habitat. General improvement in water quality is expected to translate into enhanced nesting success for summer resident avian species and higher quality feeding and resting areas for migratory avian species. Water quality improvements have the additional benefit of directly improving conditions for fish populations and many aquatic organisms.

Watershed management plans. Watershed management planning has been identified as an implementation strategy where habitat impediments are principally due to land uses within the watershed. Urban, suburban, and rural land uses can all lead to significant alteration of the watershed and diminished habitat value. These land uses all share one major feature that ultimately leads to habitat impairment: replacement of natural vegetated landscapes with relatively impervious surfaces. Increasing the amount of impervious surface in a watershed increases the volume and peak discharge of runoff which leads to higher sedimentation and flooding, increased nutrient loads, altered temperature regimes, even lower flow during drought, and elevated burden of toxic substances.

Watershed management plans offer a strategy which can identify the major causes of habitat impediment based on underlying watershed characteristics (such as soils, slopes, vegetation, and drainage patterns) and the characteristics of the superimposed land uses (Figure 6). Watershed management plans can efficiently direct appropriate technical responses to the sources of greatest impairment, thereby conserving effort and resources while maximizing benefits. For example, if agricultural uses are documented to dominate alteration of a mixed-land use watershed, then technical programs can be directed at agricultural runoff. Based on the analysis of the watershed management plan, local farmers could then be

Figure 6. Schematic example of resource inventory and environmental assessment (Morton, 1986).



encouraged to exercise source control and management measures and practices such as conservation cover, conservation cropping sequence, conservation tillage, critical area planting, crop residue use, delayed seed bed preparation, field borders, filter strips, sediment basins, strip cropping, and wetland and riparian zone setbacks.

The elements of a watershed management plan have been identified in several reference documents. One publication, Stream Corridor Management, presents the elements of a watershed plan in nine steps (Morton, 1986). These steps are: 1) identify the planning area; 2) inventory and analyze land use and environmental resources; 3) assess problems and needs; 4) establish a stream corridor management boundary; 5) establish goals and objectives; 6) compare existing controls and plans to the goals and objectives; 7) examine management options; 8) prepare management plan; and, 9) implement plan. Other appropriate planning processes are also available - the key for any approach is to identify the watershed as the planning area. A recommendation to prepare a watershed management plan usually means that land use in the watershed is relatively complex and is resulting in a suite of impediments that could only be dealt with effectively through a comprehensive approach.

Riparian corridor buffers. Establishing or protecting riparian corridor buffers are specific strategies that may be incorporated as an implementation tool in watershed management plans. The need for these strategies can often be easily identified without such a planning process. Riparian corridor buffers are lands adjacent to a tributary that are covered with permanent native vegetation, filtering runoff before it reaches the waterway, moderating water temperatures by shading the watercourse, and directly providing upland habitat for a variety of species.

Sites with tributaries that have existing riparian buffers generally have higher quality habitat values. In order to preserve habitat values, the vegetated buffers also need to be preserved. Preservation of riparian buffers would include maintaining adequate setback from the waterway, protection and management of existing vegetation (e.g. from inappropriate clear cutting or residential incursion), and including mitigative measures when no alternative to development in the buffer area is available. Conservation easements are ideal mechanisms to establish standards of protection in the riparian buffers.

Restoration of riparian corridor buffers is needed in areas where the vegetation has been removed from lands adjacent to the waterway. Residential development, tilled agricultural fields, orchards, and pastures can all result in tremendous degradation of waterways. Some of the smaller watercourses are actually plowed each year - the resulting sediment loads, nutrients, and thermal pollution can effectively eliminate a site's value as habitat. Restoration of riparian corridors includes planting trees and shrubs along stream banks as well as livestock fencing along streams. The appropriate width of vegetative buffers should also be determined. Minimum widths for avian nesting values were found to be 35 feet for restored streams that had been within livestock pastures (Holmquist, 1991). Minimum widths for providing effective filtration are a function of soil type and particle size, vegetative cover type, slope, and density of adjacent development. Buffer widths for coarse silt soils (particle size between sand and clays) range from 25 feet in forested covers with one

percent slopes and minimum adjacent development to 645 feet in herbaceous covers with ten percent slopes and a high density of adjacent development (Table 1) (New Jersey Department of Environmental Protection, 1988).

Adjacent buffer areas. Protection or establishment of adjacent buffer areas beyond stream corridors are needed to enhance habitat values in areas which are functionally habitat islands that have been isolated through a variety of land uses. Areas that currently have adjacent buffer areas provide greater habitat value through higher water quality, protection from recreational and other disturbances, and providing direct habitat values for feeding, resting and nesting by a variety of species. Conservation easements are a common strategy for protection of these areas.

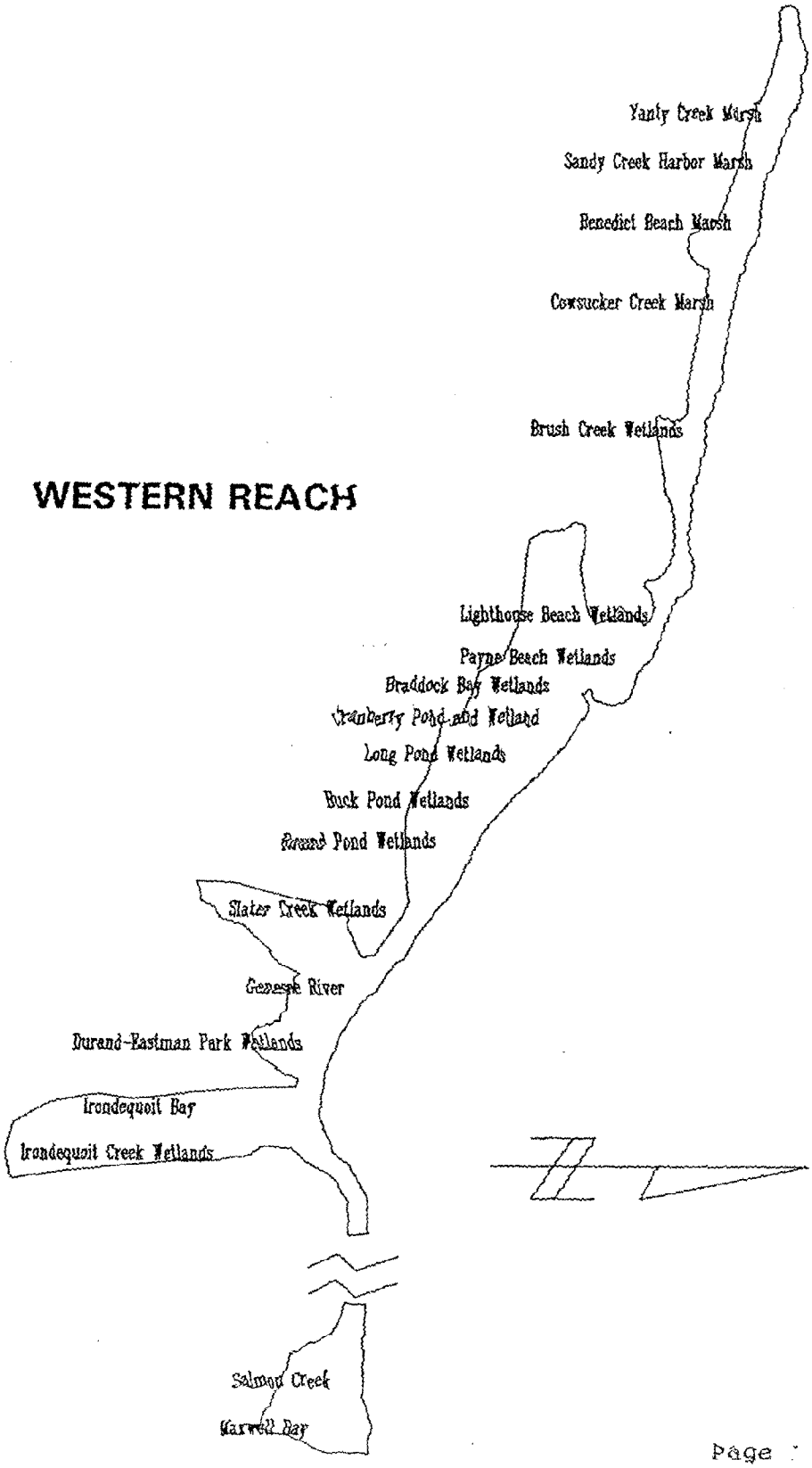
Establishing adjacent buffer areas is a strategy to pursue where adequate adjacent land is available and where isolation of the area would lead to diminished habitat values. This strategy can be used to counteract the island effect which can result from either residential development or active agriculture. Implementation of this strategy includes establishing fields of dense nesting cover (with tall-stemmed grasses, sedges, and rushes) adjacent to wetlands and waterways and reforestation of adjacent areas to provide valuable green oases during migrations.

Retention pond construction. Shallow pond construction is a strategy that can be used when establishing a riparian corridor is not possible due to existing uses. For example, smaller headwater areas may be actively farmed with the highest order, intermittent streams extending into tilled fields. Although it would be desirable to revegetate the intermittent stream channel, another alternative is to construct a shallow pond at the field edge to catch and settle out silt and other agricultural runoff. These ponds may provide the additional benefit of occasional periods of open water, wetland vegetation, or dense nesting cover depending on their design. Retention ponds differ from the shallow ponds constructed principally for direct habitat management (see shallow pond construction in previous section) in that their main function is to protect downstream areas that already provide habitat values which are in need of water quality enhancement or protection.

Table 1. Vegetated buffer widths (NJ DEP, 1988).

COVER TYPE	SLOPE (%)	DEVELOPMENT IMPACT: Low	Low-Moderate	Moderate-High	High
Herbaceous	1	60	70	80	90
	2	100	120	132	150
	3	150	180	205	225
	4	190	230	260	285
	5	225	270	305	340
	6	250	300	340	375
	7	290	350	390	435
	8	345	415	465	520
	9	375	450	505	565
	10	430	515	580	645
Shrub-Scrub	1	30	35	40	45
	2	50	60	70	75
	3	60	70	80	90
	4	70	85	95	105
	5	90	110	120	135
	6	100	120	135	150
	7	125	150	170	190
	8	130	155	175	195
	9	150	180	205	225
	10	160	190	215	240
Forest	1	25	30	35	40
	2	30	35	40	45
	3	35	40	50	55
	4	45	55	60	70
	5	45	55	60	70
	6	45	55	60	70
	7	45	55	60	70
	8	50	60	70	75
	9	50	60	70	75
	10	50	60	70	75

Derived from Wong and McCuen (1982).


WESTERN REACH
Yanty Creek Marsh
Sandy Creek Harbor Marsh
Benedict Beach Marsh
Cowsucker Creek Marsh
Brush Creek Wetlands
Lighthouse Beach Wetlands
Payne Beach Wetlands
Braddock Bay Wetlands
Cranberry Pond and Wetland
Long Pond Wetlands
Buck Pond Wetlands
Round Pond Wetlands
Slater Creek Wetlands
Genesee River
Durand-Eastman Park Wetlands
Irondequoit Bay
Irondequoit Creek Wetlands
Salmon Creek
Maxwell Bay

Lake Shore Marshes Focus Area - Western Reach Sites

Number	County	Inventory Unit Name
01	Monroe	Yanty Creek Marsh
02	Monroe	Sandy Creek Harbor Marsh
03	Monroe	Benedict Beach Marsh
04	Monroe	Cowsucker Creek Marsh
05	Monroe	Brush Creek Wetlands
06	Monroe	Lighthouse Beach Wetlands
07	Monroe	Payne Beach Wetlands
08	Monroe	Braddock Bay Wetlands
09	Monroe	Cranberry Pond and Wetlands
10	Monroe	Long Pond Wetlands
11	Monroe	Buck Pond Wetlands
12	Monroe	Round Pond Wetlands
13	Monroe	Slater Creek Wetlands
14	Monroe	Genesee River
15	Monroe	Durand-Eastman Park Wetlands
16	Monroe	Irondequoit Creek Wetlands
17	Monroe	Irondequoit Bay
18	Wayne	Salmon Creek
19	Wayne	Maxwell Bay

Resource Inventory

Site name (topo): Yanty Creek Marsh (Hamlin)

County: Monroe **Town:** Hamlin

Characteristics

cover types: open 35 % emergent 40 % shrub % forest 25 % mixed %
general description: 100a

Importance

wetland classification: type 1 (HM-7)
vulnerable spp. (name and status): black tern (SC)
heritage rank and EO: G4 S2 EO D ;
Designated as part of Yanty Creek Marsh Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [Lake Ontario connection]
- ___ conversion of wetland: dredging, fill, construction
- ___ conversion due to community succession or sedimentation

Degradation
- ___ impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [90% active agricultural land]
  - ✓ road runoff and storm sewers [salt, runoff from pkwy]
  - ✓ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [wooded island]

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ___ adjacent residential development
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ✓ impaired nesting habitat [dnc availability]

Strategies

management plans

land protection
- fee title
- conservation easement
- management agreements
- other

habitat management
- ✓ artificial nest structures
- beaver management
- ✓ DNC enhancement
- exotic species control
- water level controls
- ✓ rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: Impediment comments are from D. Woodruff (6/17/91). This site is mainly a valuable habitat for waterfowl staging and passerine migration. It is not highly productive for ducks, although some mallards may be nesting here. In fall and winter, geese, scoters, other sea ducks, and winter divers use this area. In winter, long eared owls concentrate in the stand of mature pines. Habitat value may be improved through installation of mallard tripods. Tributary protection is needed through establishment of riparian corridors; major tributary feeders are currently plowed. Expand and enhance buffer areas south of parkway through DNC and tree plantings. Opportunity for tern nesting habitat enhancement exists here.

Resource Inventory

Site name (topo): Sandy Creek Harbor Marsh (Hamlin)

County: Monroe **Town:** Hamlin

Characteristics

cover types: open 25 % emergent 30 % shrub 30 % forest 10 % mixed 5 %
general description: 75a

Importance

wetland classification: type 1 (HM-1)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments: Least bittern record from Breeding Bird Atlas.

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction [past yrs]
✓ conversion due to community succession or sedimentation

Degradation
impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
— municipal point sources & CSO's
— industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [90% of area agric]
✓ road runoff and storm sewers
✓ heavy metals (shot, sinkers, other sources)

— wetland alteration; channelization; hydrological changes
— exotic species invasion
— conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [wooded island, no buffer]

Functional loss
✓ recreational use of area excludes nesting or feeding
— overuse
— inappropriate access
✓ marina development [state and private including NYSDEC boat ramp and parking lot]
✓ adjacent residential development

✓ introduction of predators with residential development
— other uses impair or disturb habitat

Lack of habitat element
— habitat diversity low
— cattail monocultures
— scrub-shrub dominance
—

✓ impaired nesting habitat [dbc availability]

Strategies

management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments are from D. Woodruff (6/17/91). The major value of this site is for passerine migration and least bittern nesting. The site is in need of tributary protection through enhancment of riparian corridors and adjacent upland buffer; existing vegetation should be protected and additional tree and shrub plantings would be useful.

Resource Inventory

Site name (topo): Benedict Beach Marsh (Hilton)

County: Monroe **Town:** Hamlin

Characteristics

cover types: open % emergent 35 % shrub % forest 50 % mixed 15 %
general description: 50a

Importance

wetland classification: type 1 (HM-14)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
✓ conversion of wetland: dredging, fill, construction [pkwy]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
✓ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [orchards, fields, spraying, 90% agric]
✓ road runoff and storm sewers
✓ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [poorly buffered]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
✓ adjacent residential development [limited to west shore]

✓ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

✓ impaired nesting habitat [dec availability]

Strategies

management plans

land protection
fee title
✓ conservation easement
management agreements
other

habitat management
✓ artificial nest structures
beaver management
✓ DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by D. Woodruff (6/17/91). The major value of this site is for passerine migration and limited waterfowl staging. White waterlilly common in the three ponds. Artificial nest structures (mallard nesting tripods) may enhance productivity of waterfowl; tripods may be best located in the western portion of the site. Buffer from agricultural fields on east are needed and could be managed to provide adjacent DNC. Adjacent pond to west has pesticide problems, and the pond owner may be approachable for management agreements or transfer of interest. Existing buffer areas should be protected through easements, particularly along the tributary.

Resource Inventory

Site name (topo): Cowsucker Creek Marsh (Hilton)

County: Monroe **Town:** Hamlin

Characteristics

cover types: open % emergent 40 % shrub % forest 10 % mixed 50 %
general description: 75a

Importance

wetland classification: type 2 (HM-2,3)
vulnerable spp. (name and status): black tern (SC) [nearby]
heritage rank and EO: G4 S2 EO D ;

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [w/lake levels]
- ✓ conversion of wetland: dredging, fill, construction [pkwy, numerous small fills near lakeshore]
- ___ conversion due to community succession or sedimentation

Degradation
- impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - municipal point sources & CSO's
  - ✓ industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [80% agric lands]
  - ✓ road runoff and storm sewers [pkwy & crossroads]
  - ✓ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [need larger woodlots]

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ✓ adjacent residential development [along shore, some in watershed]
- ✓ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ✓ impaired nesting habitat [dnc availability]

Strategies

management plans

land protection
- fee title
- ✓ conservation easement
- management agreements
- other

habitat management
- ✓ artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: Impediment comments by D. Woodruff (6/17/91). The major habitat value of the site is for passerine migration. Waterfowl productivity may be enhanced through artificial nest structures. Protection of surrounding woodlands is important for protection of existing habitat values and may warrant conservation easements.

Resource Inventory

Site name (topo): Brush Creek Wetlands (Hilton)

County: Monroe **Town:** Hamlin/Parma

Characteristics
cover types: open 35 % emergent 45 % shrub 5 % forest 10 % mixed 5 %
general description: 180a

Importance
wetland classification: type 1 (PM-1)
vulnerable spp. (name and status):
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction [numerous small fills along road by lakeside cottages]
✓ conversion due to community succession or sedimentation

Degradation
impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
municipal point sources & CSO's
industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [70% agricultural lands, cornfields]
✓ road runoff and storm sewers
heavy metals (shot, sinkers, other sources)

wetland alteration; channelization; hydrological changes
exotic species invasion
conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [fallow fields, limited woods]

Functional loss
recreational use of area excludes nesting or feeding
overuse
inappropriate access
marina development
✓ adjacent residential development

✓ introduction of predators with residential development
other uses impair or disturb habitat

Lack of habitat element
habitat diversity low
cattail monocultures
scrub-shrub dominance

✓ impaired nesting habitat [dnc availability]

Strategies

management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
✓ DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by D. Woodruff (6/17/91). The site is under the ownership of NYS OPRHP. Then site provides some wood duck and mallard habitat. Waterfowl productivity and value to passerine migrants would be improved through DNC enhancement and revegetation along riparian corridor.

Resource Inventory

Site name (topo): Lighthouse Beach Wetlands (Hilton)

County: Monroe **Town:** Parma

Characteristics
cover types: open % emergent % shrub 20 % forest 40 % mixed 40 %
general description: 115a

Importance
wetland classification: type 1 (PM-2)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, [illegible] construction [pkwy]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
✓ industrial or private point sources [septic]
✓ agricultural: fertilizer, pesticides, pasturage
✓ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
___ loss of buffer areas and riparian vegetation

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
✓ adjacent residential development

✓ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

✓ impaired nesting habitat [dnc availability]

Strategies

✓ management plans

✓ land protection
fee title
✓ conservation easement
management agreements
✓ other

habitat management
artificial nest structures
beaver management
✓ DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
✓ interpretive signage
✓ trail or boardwalk
limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by D. Woodruff (6/17/91). The major habitat values for the site are for passerine migration. The town has expressed interest in purchasing the site as a park. A management plan designed to protect existing and enhance potential values should be developed in concert with acquisition; work with town through the planning process to assess protection strategies. Habitat values could be improved through DNC enhancement and restoring adjacent buffer areas through shrub and tree plantings. If the site is acquired, ideal opportunities for public access and environmental education would be afforded.

Resource Inventory

Site name (topo): Payne Beach Wetlands (Braddock Heights)

County: Monroe **Town:** Greece

Characteristics

cover types: open % emergent 5 % shrub % forest 30 % mixed 65 %
general description: 140a

Importance

wetland classification: type 1 (GR-17)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Braddock Bay & Salmon Creek Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [w/lake levels]
- ✓ conversion of wetland: dredging, fill, construction [pkwy]
- ✓ conversion due to community succession or sedimentation

Degradation
- impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - ✓ municipal point sources & CSO's [Monroe Co. STP upstream]
  - industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [50% agric, adjacent area buffered]
  - ✓ road runoff and storm sewers
  - ✓ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ___ loss of buffer areas and riparian vegetation

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ___ adjacent residential development
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ✓ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

✓ management plans

land protection
- fee title
- ✓ conservation easement
- ✓ management agreements
- other

habitat management
- artificial nest structures
- beaver management
- ✓ DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- ✓ shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- ✓ interpretive signage
- ✓ trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: Impediment comments from Sharon Skelly-DEC (6/19/91). A portion of the site is a DEC administered waterfowl refuge. Monroe County owns the portion west of parkway. The site is well buffered and provides habitat values for passerine migrants. Waterfowl productivity may be enhanced through mallard nesting tripods and enhancement of DNC. The portion towards the lake from the parkway is becoming very woody, limiting the occurrence of other habitat elements. Adjacent buffer areas are critical to the existing habitat values and should be protected. Protection and management efforts should be undertaken through coordinated planning by DEC and the County. Opportunities exist for providing public access and environmental education programs at the site.

Resource Inventory

Site name (topo): Braddock Bay Wetlands (Braddock Heights)

County: Monroe **Town:** Greece

Characteristics

cover types: open 40 % emergent 40 % shrub 5 % forest 15 % mixed %
general description: 850a

Importance

wetland classification: type 1 (GR-1)
vulnerable spp. (name and status): black tern (SC)
heritage rank and EO: G4 S2 EO BC ;
Designated as part of Braddock Bay & Salmon Creek Significant Coastal Habitat

Comments: sedge wrens (SC), Henslow's sparrow (SC), grasshopper sparrow (SC) have been recorded using the fields to the east. occasional concentrations of wintering waterfowl during adverse weather on the nearshore; 135 peak yr

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [w/lake levels]
- ✓ conversion of wetland: dredging, fill, construction [agricultural lands along stream, no buffer, stream access demands from residents]
- ___ conversion due to community succession or sedimentation

Degradation
- ✓ impoundments or alteration of flushing rates [beaver activity upstream]
- ___ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [lawns to w, algal bloom]
  - ✓ road runoff and storm sewers [heavy sediment load]
  - ✓ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ✓ exotic species invasion [isolated for now]
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [80% agric & residential]

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ✓ inappropriate access [speedboats-(speed limits?)]
  - ✓ marina development [bulkheading]
  - ✓ adjacent residential development
- ✓ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

✓ management plans

land protection
- fee title
- conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- ✓ rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- ✓ interpretive signage
- trail or boardwalk
- ✓ limit human use / access

water quality improvement
- watershed planning
- riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- ✓ point source reduction

Assessment: Impediment comments by Sharon Skelly-DEC (6/18/91). The site is a DEC-administered Wildlife Management Area with major habitat value as a migratory bird staging area. Boat speed limits would benefit nesting black terns especially; human use should be limited during nesting period of terns with signage and interpretive materials. Only isolated pine grove in Braddock's complex; this pine grove has been documented as an owl roost in winter and during spring migration for short eared, long eared, saw-whet, and snowy owls. There is concentrated warbler use of any upland woods/shrubs; shorebirds use barrier beach flats in August; divers and sea ducks use the nearshroe area in winter. Additional habitat enhancement might be accomplished through fill removal, buffer improvement (including shrub and tree plantings), and reduction in road runoff. Existing vegetation (especially mature trees and shrubs, e.g. willows on east and west spits) should be protected.

Resource Inventory

Site name (topo): Cranberry Pond and Wetlands (Braddock Heights)

County: Monroe **Town:** Greece

Characteristics

cover types: open 35 % emergent 45 % shrub % forest 5 % mixed 15 %
general description: 400a

Importance

wetland classification: type 1 (GR-19)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Braddock Bay & Salmon Creek Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
✓ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [limited to south]
✓ road runoff and storm sewers [parkway]
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [60% residential]

Functional loss
___ recreational use of area excludes nesting or feeding
✓ overuse
___ inappropriate access
___ marina development
✓ adjacent residential development [above parkway/discolored runoff]

✓ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
✓ habitat diversity low
✓ cattail monocultures [in some areas]
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

✓ management plans

land protection
fee title
✓ conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
✓ increase diversity
shallow pond construction
✓ restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
raparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by Sharon Skelly-DEC (6/18/91). The site is a DEC administered Wildlife Management Area with major habitat value as a migratory bird staging area, including waterfowl. The Wildlife Management Area is in need of a management plan. Protection is needed for adjacent woodlands through conservation easements. Habitat enhancement opportunities exist through increasing cover type diversity by creating more interspersion of open water in the cattail marsh. Another knowledgeable contact for this site is: Bob Oswald-227-1818.

Resource Inventory

Site name (topo): Long Pond Wetlands (Braddock Heights)

County: Monroe **Town:** Greece

Characteristics
cover types: open 75 % emergent 20 % shrub % forest 5 % mixed %
general description: 530a

Importance
wetland classification: type 1 (GR-20)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Braddock Bay & Salmon Creek Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction [fill on east side, pkwy]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [above pkwy discolored runoff, mixed resid. & agric.]
✓ road runoff and storm sewers [parkway spans pond]
✓ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [bay 90% residential]

Functional loss
✓ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
✓ marina development [bulkhead/adjacent res.=48% of shoreline]
✓ adjacent residential development
✓ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance
___

✓ impaired nesting habitat [dnc availability]

Strategies

✓ management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
✓ DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
✓ limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by Sharon Skelly-DEC (6/18/91). The site is a DEC-administered Wildlife Management Area with major habitat value as a migratory bird staging area, with some shorebird roosting habitat to the south. Concentrations of shorebirds in late summer at littoral mudflats in southern sections. There is a pine grove located at south end. The buffer areas to south could be enhanced with DNC plantings. Human use could be controlled at the south end where habitat value and diversity are greatest and most sensitive to disturbance. North of parkway there are major habitat losses due to shoreline developments.

Resource Inventory

Site name (topo): Buck Pond Wetlands (Braddock Heights)

County: Monroe Town: Greece

Characteristics
cover types: open 30 % emergent 50 % shrub 10 % forest % mixed 10 %
general description: 715a

Importance
wetland classification: type 1 (GR-21)
vulnerable spp. (name and status): black tern (SC); northern harrier (T)
heritage rank and EO: G4 S2 EO C ;
Designated as part of Braddock Bay & Salmon Creek Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, [redacted] construction [roads & fields]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
___ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [trib to south plowed]
✓ road runoff and storm sewers [parkway]
✓ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
✓ exotic species invasion [phragmites, not a real problem yet]
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [parkways, adjacent lands & fields]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

✓ management plans

land protection
fee title
conservation easement
✓ management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
✓ rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
✓ interpretive signage
trail or boardwalk
✓ limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by Sharon Skelly-DEC (6/18/91). The site is a DEC/Town of Greece administered Wildlife Management Area with major habitat value as a staging area for migratory birds, including significant concentrations of sharp-tailed sparrows, waterfowl, and shorebirds. Sedge wrens and northern harrier nest at the site. The least recreational impact of all ponds in the complex. Need to maintain landfill area for species using it, which will require an assessment whether or not periodic mowing or some other management is necessary for maintaining present uses. The area is in need of a management plan which would address needs of rare species and the opportunity for interpretive signage and other educational materials to increase public awareness of habitat values. Human use should be controlled where rare species are nesting. Enhance buffer around tributary to south through the establishment of riparian corridors; tributary is currently plowed.

Resource Inventory

Site name (topo): Round Pond Wetlands (Braddock Heights)

County: Monroe **Town:** Greece

Characteristics
cover types: open 10 % emergent 75 % shrub 5 % forest 10 % mixed %
general description: 285a

Importance
wetland classification: type 1 (GR-21)
vulnerable spp. (name and status): black tern (SC)
heritage rank and EO: G4 S2 EO D ;
Designated as part of Braddock Bay & Salmon Creek Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction [roads, east shore]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
✓ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [upper watershed]
✓ road runoff and storm sewers [new highway to west]
✓ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
___ loss of buffer areas and riparian vegetation

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
✓ habitat diversity low
✓ cattail monocultures [lacks open water]
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

✓ management plans

land protection
fee title
conservation easement
✓ management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
✓ rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
✓ interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by Sharon Skelly-DEC (6/18/91). The site is an OGS administered pond. A bird club (Bird Refuges Inc.) owns upland parcels on west side of pond. The major habitat values are wood duck, bittern, rail, and black tern nesting. The site is also an important raptor migration and observation area. Opportunity may exist for tern habitat enhancement by breaking up some sections of cattails and creating floating mat habitat. Interpretive signage and the development of other educational materials would benefit public awareness of the habitat values and enhance and/or increase public opportunity to organize and participate in local hawkwatch events.

Resource Inventory

Site name (topo): Slater Creek Wetlands (Braddock Heights)

County: Monroe **Town:** Greece

Characteristics
cover types: open 20 % emergent 65 % shrub % forest 15 % mixed %
general description: 25a

Importance
wetland classification: type 2 (GR-25)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Slater Creek Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation

Degradation
impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
  ✓ municipal point sources & CSO's
  ✓ industrial or private point sources [powerplant]
  ✓ agricultural: fertilizer, pesticides, pasturage [golf course]
  ✓ road runoff and storm sewers
  ✓ heavy metals (shot, sinkers, other sources) [coal leachate]

wetland alteration; channelization; hydrological changes
exotic species invasion
conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation

Functional loss
recreational use of area excludes nesting or feeding
  overuse
  inappropriate access
  marina development
  ✓ adjacent residential development

✓ introduction of predators with residential development
other uses impair or disturb habitat

Lack of habitat element
habitat diversity low
  cattail monocultures
  scrub-shrub dominance

impaired nesting habitat

Strategies

management plans

land protection
  fee title
  conservation easement
  management agreements
  other

habitat management
  artificial nest structures
  beaver management
  DNC enhancement
  exotic species control
  water level controls
  rare species management
  increase diversity
  shallow pond construction
  ✓ restoration / reclaimation
  ✓ limit active mangement
  research prior to action

public use control
  interpretive signage
  trail or boardwalk
  limit human use / access

water quality improvement
  watershed planning
  riparian corridor buffers
  adjacent buffer areas
  shallow pond construction
  point source reduction

Assessment: Impediment comments by Dave Woodruff-DEC (6/19/91). The site is degraded with little habitat value. Extensive losses of riparian buffers, point sources, and wetland filling have reduced the functional values of the site. If a restoration opportunity of low cost presents itself it should be pursued, otherwise this is not a site for habitat management activities.

Resource Inventory

Site name (topo): Genesee River (Rochester East)

County: Monroe **Town:** Rochester/Greece

Characteristics
cover types: open 85 % emergent 15 % shrub % forest 15 % mixed %
general description: 150a

Importance
wetland classification: type 2 (RH-6,8,9,21); type 1 (RH-20)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Genesee River Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels
✓ conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation

Degradation
impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
  ✓ municipal point sources & CSO's
  ✓ industrial or private point sources
  ✓ agricultural: fertilizer, pesticides, pasturage
  ✓ road runoff and storm sewers
  ✓ heavy metals (shot, sinkers, other sources)

✓ wetland alteration; channelization; hydrological changes
exotic species invasion
conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [some places]

Functional loss
recreational use of area excludes nesting or feeding
  overuse
  inappropriate access
  ✓ marina development
  ✓ adjacent residential development

✓ introduction of predators with residential development
other uses impair or disturb habitat

Lack of habitat element
habitat diversity low
  cattail monocultures
  scrub-shrub dominance

impaired nesting habitat

Strategies

✓ management plans

land protection
  fee title
  conservation easement
  management agreements
  other

habitat management
  artificial nest structures
  beaver management
  DNC enhancement
  exotic species control
  water level controls
  rare species management
  increase diversity
  shallow pond construction
  restoration / reclaimation
  limit active mangement
  research prior to action

public use control
  interpretive signage
  trail or boardwalk
  limit human use / access

water quality improvement
  ✓ watershed planning
  riparian corridor buffers
  adjacent buffer areas
  shallow pond construction
  ✓ point source reduction

Assessment: Impediment comments by Sharon Shelly-DEC (6/18/91). The major habitat value associated with this site is wintering waterfowl use. There is a need to support existing programs like SCS's efforts to lower sedimentation rates in the river watershed. Also need to support comprehensive management planning efforts in the form of Remedial Action Plan. These program and planning efforts should acknowledge and address wintering waterfowl as a component of the river system.

Resource Inventory

Site name (topo): Durand-Eastman Park Wetlands (Rochester East)

County: Monroe **Town:** Rochester

Characteristics
cover types: open 90 % emergent 10 % shrub % forest % mixed %
general description: 30a

Importance
wetland classification: type 1 (RH-13,14)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments: consistent use by small numbers of wintering waterfowl; mallard, scaup, goldeneye; 300 in peak year.

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
✓ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
✓ impoundments or alteration of flushing rates [beaver]
✓ point and non-point pollution and nutrient loads
  ✓ municipal point sources & CSO's
  ___ industrial or private point sources
  ✓ agricultural: fertilizer, pesticides, pasturage [golf courses]
  ✓ road runoff and storm sewers [east section only; west lake turbid on flight]
  ___ heavy metals (shot, sinkers, other sources)
___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
___ loss of buffer areas and riparian vegetation

Functional loss
✓ recreational use of area excludes nesting or feeding [park]
  ___ overuse
  ___ inappropriate access
  ___ marina development
  ___ adjacent residential development
___ introduction of predators with residential development
✓ other uses impair or disturb habitat

Lack of habitat element
✓ habitat diversity low [mostly open water]
  ___ cattail monocultures
  ___ scrub-shrub dominance
✓ impaired nesting habitat [dnc availability]

Strategies

✓ management plans

land protection
  fee title
  conservation easement
  management agreements
  other

habitat management
  artificial nest structures
  beaver management
  DNC enhancement
  exotic species control
  water level controls
  rare species management
  increase diversity
  shallow pond construction
  restoration / reclaimation
  limit active mangement
  research prior to action

public use control
  ✓ interpretive signage
  ✓ trail or boardwalk
  limit human use / access

water quality improvement
  ✓ watershed planning
  ✓ riparian corridor buffers
  ✓ adjacent buffer areas
  shallow pond construction
  point source reduction

Assessment: Impediments comments by Sharon Skelly-DEC (6/18/91). The site is a City of Rochester owned and administered park with major habitat value as a migratory bird staging area; especially important for passerines. There are also substantial numbers of wintering resident passerines using the park. To a lesser degree the site provides wintering habitat for small numbers of waterfowl, such as scaup, merganser, and goldeneye. A management plan would be helpful in balancing human uses and wildlife uses and addressing the maintainence of water quality through riparian corridor protection and protecting adjacent buffers. Interpretive signage and the development of other educational materials and programs to promote public awareness of the important habitat values of the site are needed. Also, given the intensive use of the park by city residents, opportunity exists for trail and boardwalk development and rerouting to enhance educational opportunities for the public. This site illustrates particularly well the 'island' nature of the woodlands of the park. With the surrounding populus, public participation and volunteers for small projects should be relatively easy to solicit.

Resource Inventory

Site name (topo): Irondequoit Creek Wetlands (Rochester East)

County: Monroe **Town:** Rochester/Penfield

Characteristics

cover types: open 20 % emergent 60 % shrub % forest 10 % mixed 10 %
general description: 265a

Importance

wetland classification: type 1 (PN-11,37); type 2 (PN-1)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as Irondequoit Bay & Creek Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [w/lake levels]
- ✓ conversion of wetland: dredging, fill, construction [fill at head from various light industry, some illegal; dredging for parking and channels]
- ___ conversion due to community succession or sedimentation

Degradation
- ___ impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - municipal point sources & CSO's
  - ✓ industrial or private point sources
  - agricultural: fertilizer, pesticides, pasturage
  - ✓ road runoff and storm sewers [4 lane at head,6 lane over bay]
  - ✓ heavy metals (shot, sinkers, other sources)
- ✓ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [spotty buffer, bluff top development; bulkheads east side of road, 90% resid in area]

Functional loss
- ✓ recreational use of area excludes nesting or feeding
  - ✓ overuse
  - inappropriate access
  - ✓ marina development
  - ✓ adjacent residential development [cleared land]
- ✓ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ✓ impaired nesting habitat [dec availability]

Strategies

✓ management plans

land protection
- fee title
- ✓ conservation easement
- ✓ management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- ✓ restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- ✓ watershed planning
- riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: Impediment comments by Sharon Skelly-DEC (6/18/91). Major habitat value as an important mudflats area in fall for migratory shorebirds, and to a lesser extent waterfowl and passerines. The site has potential for some restoration and reclaimation where fill has been placed. A management plan is needed to balance wildlife use and increasing recreational use and residential development pressures. Comprehensive watershed planning efforts should be supported, with planning efforts giving particular attention to water quality and nutrient loads in Irondequoit Creek. Adjacent buffer areas need protection through easements or management agreements. Lemna or algal blooms documented at fringes-4/91. First area with substantial woodland buffers.

Resource Inventory

Site name (topo): Irondequoit Bay (Rochester East)

County: Monroe **Town:** Rochester/Penfield

Characteristics
cover types: open 95 % emergent 5 % shrub % forest % mixed %
general description: 1500a

Importance
wetland classification: type 1 (RE-1)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as Irondequoit Bay & Creek Significant Coastal Habitat

Comments: Wintering waterfowl; 373 ducks average from '86-'91. Mallard, black, goldeneye, scaup, & mergansers

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction [fill at head from various light industry, some illegal; dredging for parking and channels]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
- ✓ municipal point sources & CSO's [STPs]
- ✓ industrial or private point sources
- ___ agricultural: fertilizer, pesticides, pasturage
- ✓ road runoff and storm sewers [4 lane at head,6 lane over bay]
- ✓ heavy metals (shot, sinkers, other sources)

✓ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [spotty buffer, bluff top development; bulkheads east side of road, 90% resid in area]

Functional loss
✓ recreational use of area excludes nesting or feeding
- ✓ overuse
- ___ inappropriate access
- ✓ marina development
- ✓ adjacent residential development [cleared land]

✓ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
- ___ cattail *monocultures*
- ___ scrub-shrub dominance

✓ impaired nesting habitat [nrc availability]

Strategies

✓ management plans

land protection
- fee title
- ✓ conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- ✓ restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- ✓ watershed planning
- riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: Impediment comments by Sharon Skelly-DEC (6/18/91). Major habitat value as an migratory staging area for many waterfowl species, including mallard, mergansers, scaup, and American black duck. The site has potential for some restoration and reclaimation where fill has been placed. A management plan is needed to balance wildlife use and increasing recreational use and residential development pressures facing the bay. Comprehensive watershed planning efforts should be supported, with planning efforts giving particular attention to water quality and nutrient loads in Irondequoit Creek. Seek agreements from marina owners to reduce point and nonpoint sources and upgrade pumpout facilities. Adjacent buffer areas need protection through easements and local controls, such as standardized buffer requirements.

Resource Inventory

Site name (topo): Salmon Creek (Pultneyville)

County: Wayne **Town:** Williamson

Characteristics
cover types: open 100 % emergent % shrub % forest % mixed %
general description: 10a

Importance
wetland classification: ?
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [w/lake levels]
- ✓ conversion of wetland: dredging, fill, construction
- ___ conversion due to community succession or sedimentation

Degradation
- ___ impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [orchards]
  - ✓ road runoff and storm sewers
  - ✓ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation

Functional loss
- ✓ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ✓ marina development
  - ✓ adjacent residential development
- ✓ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- conservation easement
- ✓ management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- ✓ interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: The site has been identified as an important migration/wintering area for waterfowl, with little production. Waterfowl wintering has also been documented in nearshore waters from Ontario on the Lake to Holland Cove(Wayne County Planning Board, 1977). Opportunity to educate boaters through interpretive signage of the area's importance to waterfowl. Seek agreements from marina owners to reduce point and nonpoint sources and upgrade pumpout facilities. The main threats to the site are continued water quality degradation and additional riparian and marina development.

Resource Inventory

Site name (topo): Maxwell Bay (Salmon Creek)

County: Wayne **Town:** Sodus

Characteristics
cover types: open 20 % emergent 20 % shrub % forest 45 % mixed 15 %
general description: 75a

Importance
wetland classification: type na
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as Salmon Creek Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
___ conversion of wetland: dredging, fill, construction
✓ *conversion due to community succession or* sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
✓ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [orchards]
✓ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [intact on west; 60% orchards]

Functional loss
✓ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
✓ marina development [boat launch]
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

✓ impaired nesting habitat [dre availability]

Strategies

management plans

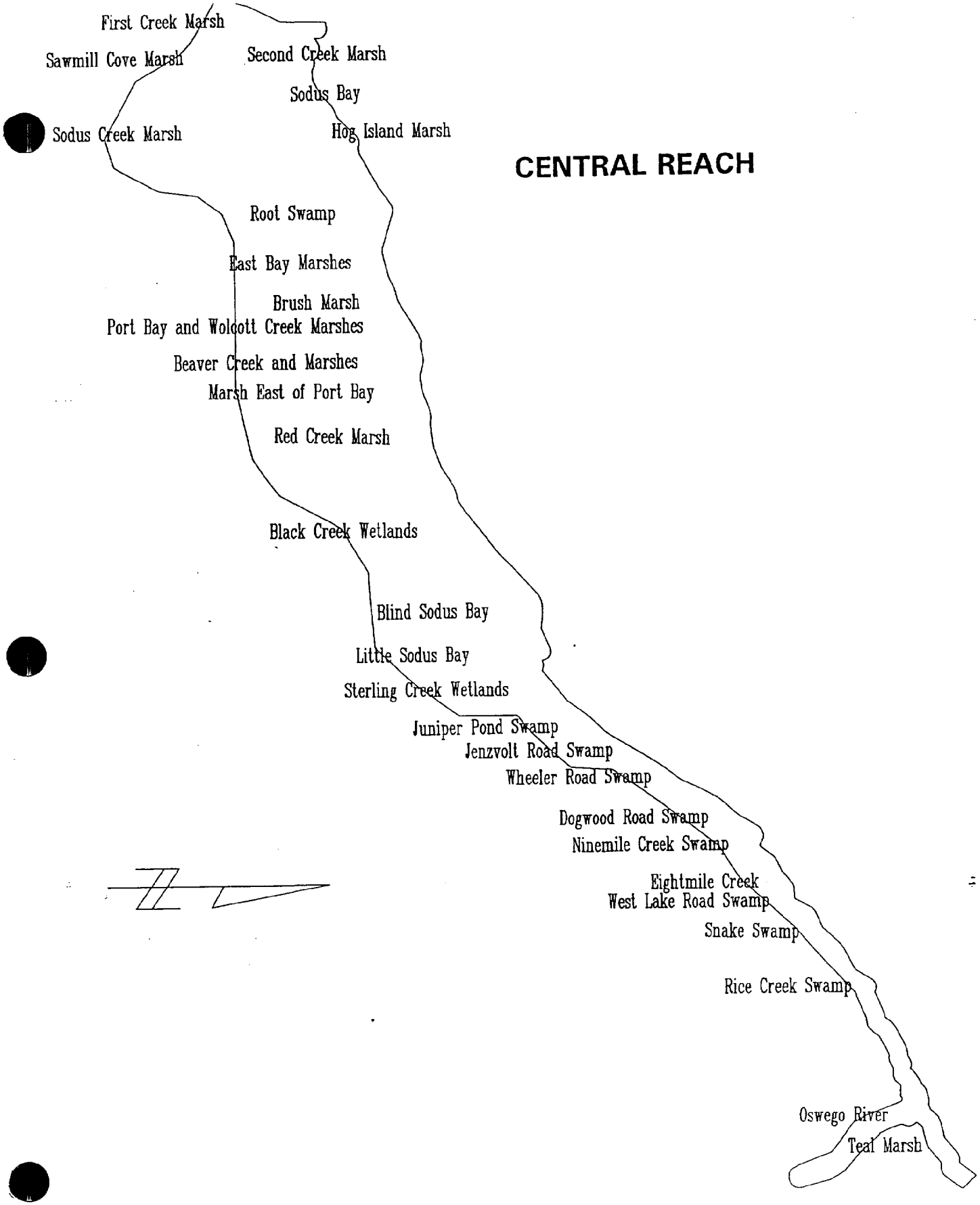
land protection
fee title
conservation easement
✓ management agreements
other

habitat management
artificial nest structures
beaver management
✓ DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The major habitat value of the site is waterfowl staging. DNC enhancement of riparian corridors and adjacent areas on the east side of the Salmon Creek should be pursued in order to improve both nesting habitat and water quality. Opportunity exists for management agreement with Girl Scout camp on west side.


First Creek Marsh
Sawmill Cove Marsh
Second Creek Marsh
Sodus Bay
Sodus Creek Marsh
Hog Island Marsh
CENTRAL REACH
Root Swamp
East Bay Marshes
Brush Marsh
Port Bay and Wolcott Creek Marshes
Beaver Creek and Marshes
Marsh East of Port Bay
Red Creek Marsh
Black Creek Wetlands
Blind Sodus Bay
Little Sodus Bay
Sterling Creek Wetlands
Juniper Pond Swamp
Jenzvolt Road Swamp
Wheeler Road Swamp
Dogwood Road Swamp
Ninemile Creek Swamp
Eightmile Creek
West Lake Road Swamp
Snake Swamp
Rice Creek Swamp
Oswego River
Teal Marsh

Lake Shore Marshes Focus Area - Central Reach Sites

Number	County	Inventory Unit Name
20	Wayne	First Creek Marsh
21	Wayne	Sodus Bay
22	Wayne	Second Creek Marsh
23	Wayne	Sawmill Cove Marsh
24	Wayne	Sodus Creek Marsh
25	Wayne	Hog Island Marsh
26	Wayne	Root Swamp
27	Wayne	East Bay Marshes
28	Wayne	Brush Marsh
29	Wayne	Beaver Creek and Marshes
30	Wayne	Port Bay and Wolcott Creek Marshes
31	Wayne	Marsh east of Port Bay
32	Wayne	Red Creek Marsh
33	Wayne	Black Creek Wetlands
34	Wayne/Cayuga	Blind Sodus Bay
35	Cayuga	Little Sodus Bay
36	Cayuga	Sterling Creek Wetlands
37	Cayuga	Juniper Pond Swamp
38	Cayuga	Jenzvolt Road Swamp
39	Cayuga	Wheeler Road Swamp
40	Cayuga	Dogwood Road Swamp
41	Cayuga	Ninemile Creek Swamp
42	Cayuga	Eightmile Creek
43	Oswego	West Lake Road Swamp
44	Oswego	Snake Swamp
45	Oswego	Rice Creek Swamp
46	Oswego	Oswego River
47	Oswego	Teal Marsh

Resource Inventory

Site name (topo): First Creek Marsh (Sodus Point/Pultneyville)

County: Wayne **Town:** Sodus

Characteristics
cover types: open 20 % emergent 40 % shrub % forest % mixed 40 %
general description: 40a

Importance
wetland classification: type 3 (SP-7)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Lake Shore Marshes Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
___ conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation [dirt road runoff, small clearcuts in adjacent areas]

Degradation
✓ impoundments or alteration of flushing rates [beaver dams]
✓ point and non-point pollution and nutrient loads
- ✓ municipal point sources & CSO's [small landfill]
- ___ industrial or private point sources
- ✓ agricultural: fertilizer, pesticides, pasturage [orchards & golf course]
- ✓ road runoff and storm sewers [several crossings]
- ___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
✓ exotic species invasion [purple loosestrife]
✓ conditions favor disease outbreaks (eg., botulism) [due to significant phosphorus levels and significant macrophytic growth in lower section, oxygen levels not surveyed]
✓ loss of buffer areas and riparian vegetation [clearcuts in past]

Functional loss
___ recreational use of area excludes nesting or feeding
- ___ overuse
- ___ inappropriate access
- ✓ marina development [at bay]
- ___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
- ___ cattail monocultures
- ___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- conservation easement
- management agreements
- other

habitat management
- ✓ artificial nest structures
- ✓ beaver management
- DNC enhancement
- ✓ exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- ✓ research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- ✓ watershed planning
- riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- ✓ point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The major habitat value of the site is migratory staging, especially for passerines. There is a research need to identify the phosphorus source in lower section; an abandoned railroad yard may be source. There is evidence of beaver activity and this should be maintained in order to create more open water, DNC, and to control loosestrife. The site has potential for artificial nest structures. Adjacent buffers should remain intact and the site should be included in a comprehensive watershed management plan for Sodus Bay.

Resource Inventory

Site name (topo): Sodus Bay (Sodus Point/Rose)

County: Wayne **Town:** Sodus/Huron

Characteristics
cover types: open 100% emergent % shrub % forest % mixed %
general description: 1975a

Importance
wetland classification: type na
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Sodus Bay Significant Coastal Habitat

Comments: occasional winter waterfowl use during adverse lake conditions; species include goldeneye, scaup, mallard, and black. 500 in peak year.

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction [especially on bay periphery]
✓ conversion due to community succession or sedimentation [Glenwood Creek alone=2000 tons/yr, other cks contribute]

Degradation
impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads [significant]
municipal point sources & CSO's
✓ industrial or private point sources [septic]
✓ agricultural: fertilizer, pesticides, pasturage [golf course, orchards-esp. to east; bay very eutrophic]
✓ road runoff and storm sewers [significant chloride levels]
✓ heavy metals (shot, sinkers, other sources) [moderately to heavily polluted sediments in bay]

wetland alteration; channelization; hydrological changes
✓ exotic species invasion [water chestnut,milfoil]
conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [adjacent residential & comm development]

Functional loss
✓ recreational use of area excludes nesting or feeding
✓ overuse [at times]
inappropriate access
✓ marina development
✓ adjacent residential development

✓ introduction of predators with residential development
other uses impair or disturb habitat

Lack of habitat element
habitat diversity low
cattail monocultures
scrub-shrub dominance

✓ impaired nesting habitat [due availability]

Strategies

✓ management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
✓ research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
✓ watershed planning
✓ riparian corridor buffers
adjacent buffer areas
shallow pond construction
✓ point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The site has a major habitat value as a migratory and wintering area for waterfowl; there is also an increasing resident goose population in the bay. Overfeeding ducks by the public has led to deaths in the wintering population; interpretive and educational materials to inform the public that observation without feeding is best for the waterfowl should be provided at the marina. Investigate phosphorus and chloride sources and polluted sediment loading in the bay; may be from fertilizer application, may be from natural sources in Silurian bedrock. Plant growth inhibits much shoreline boating. The area needs a comprehensive watershed plan to address sediment load, nutrient load, pollution sources, and protection or enhancement of tributary buffers.

Resource Inventory

Site name (topo): Second Creek Marsh (Sodus Point/Rose)

County: Wayne **Town:** Sodus

Characteristics

cover types: open 50 % emergent 20 % shrub 5 % forest 15 % mixed 10 %
general description: 80a

Importance

wetland classification: type 2 (RO-27)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Lake Shore Marshes Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation [greatest loss per acre of suspended solids in this watershed]

Degradation
impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
municipal point sources & CSO's
✓ industrial or private point sources [Barker chemical plant upstream-not now in operation]
✓ agricultural: fertilizer, pesticides, pasturage
road runoff and storm sewers
✓ heavy metals (shot, sinkers, other sources)

wetland alteration; channelization; hydrological changes
✓ exotic species invasion [milfoil and water chestnut]
conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [stream bank & bay buffers, 50% adjacent agric]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ *marina development*
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

✓ impaired nesting habitat [dnc availability]

Strategies

management plans

land protection
fee title
✓ conservation easement
management agreements
other

habitat management
✓ artificial nest structures
beaver management
DNC enhancement
✓ exotic species control
water level controls
✓ rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
✓ research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
✓ watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
✓ shallow pond construction
point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The major habitat value of the site is use as a migratory staging area for passerines. The site has significant macrophytic growth and research needs to be undertaken to determine the source(s) of nutrient loading. Osprey are seen in area frequently; the feasability of erecting an osprey nesting pole should be studied. The site has the worst sediment load in the watershed. The site would benefit from the creation of shallow ponds in the adjacent areas to both reduce sedimentation and increase waterfowl feeding and brood habitat. A comprehensive watershed plan is needed to enhance riparian corridors and buffers through tree plantings and stream bank stabilization. The remaining buffer areas should be protected through conservation easements. Additional habitat enhancement might be accomplished through an exotic species control program and placing artificial nesting structures for waterfowl at the site.

Resource Inventory

Site name (topo): Sawmill Cove Marsh (Rose)

County: Wayne **Town:** Sodus

Characteristics

cover types: open 10 % emergent 40 % shrub % forest 25 % mixed 25 %
general description: 60a

Importance

wetland classification: type 2 (RO-26)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Lake Shore Marshes Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [w/lake levels]
- ✓ conversion of wetland: dredging, fill, construction [road crossing]
- ✓ conversion due to community succession or sedimentation

Degradation
- impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - municipal point sources & CSO's
  - ✓ industrial or private point sources [old farm dumps; also xylene,benzene,trichloroethylene pollution of water supplies to some homes that intake from Third Creek-source unknown]
  - ✓ agricultural: fertilizer, pesticides, pasturage [orchards]
  - road runoff and storm sewers
  - heavy metals (shot, sinkers, other sources)
- wetland alteration; channelization; hydrological changes
- ✓ exotic species invasion [some purple loosestrife]
- conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [fields to east]

Functional loss
- recreational use of area excludes nesting or feeding
  - overuse
  - inappropriate access
  - marina development
  - adjacent residential development
- introduction of predators with residential development
- other uses impair or disturb habitat

Lack of habitat element
- habitat diversity low
  - cattail monocultures
  - scrub-shrub dominance
- ✓ impaired nesting habitat [dnc availability]

Strategies

management plans

land protection
- fee title
- ✓ conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- ✓ DNC enhancement
- ✓ exotic species control
- ✓ water level controls
- rare species management
- increase diversity
- ✓ shallow pond construction
- restoration / reclaimation
- limit active mangement
- ✓ research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- ✓ watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- ✓ shallow pond construction
- point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). With the mostly wooded buffer areas, the site has major habitat value as an important area for migratory passerines. Waterfowl could benefit from increasing water level. Improve water quality and enhance waterfowl habitat through the construction of shallow ponds along the east side of the creek to control sedimentation rates and create pair nesting and brood habitat. Easements would ensure the integrity of the wooded buffer area to the west. DNC enhancement through plantings and the establishment of riparian corridors. This site should also receive attention through a comprehensive watershed management plan for Sodus Bay and associated tributaries

Resource Inventory

Site name (topo): Sodus Creek Marsh [Sodus Bay Unit WMA] (Rose)

County: Wayne **Town:** Huron

Characteristics
cover types: open 25 % emergent 40 % shrub 5 % forest 10 % mixed 20 %
general description: 250a

Importance
wetland classification: type 1 (RO-29)
vulnerable spp. (name and status): black tern (SC)
heritage rank and EO: G4 S2 EO D ;
Designated as part of Lake Shore Marshes Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation [significant sedimentation]

Degradation
✓ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads [significant]
municipal point sources & CSO's
✓ industrial or private point sources [wetland may be overloaded; chemical company, food processing plants, 58% ag watershed, nitrate & phosphorus problems, ph problems]
✓ agricultural: fertilizer, pesticides, pasturage
✓ road runoff and storm sewers
✓ heavy metals (shot, sinkers, other sources)

wetland alteration; channelization; hydrological changes
✓ exotic species invasion [water chestnut]
conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [50% adjacent fields]

Functional loss
recreational use of area excludes nesting or feeding
overuse
inappropriate access
marina development
adjacent residential development

introduction of predators with residential development
other uses impair or disturb habitat

Lack of habitat element
habitat diversity low
cattail monocultures
scrub-shrub dominance

impaired nesting habitat

Strategies

management plans

land protection
fee title
✓ conservation easement
✓ management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
✓ exotic species control
water level controls
✓ rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
✓ interpretive signage
✓ trail or boardwalk
limit human use / access

water quality improvement
✓ watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
✓ shallow pond construction
point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The site is a DEC administered Waterfowl Refuge with major habitat value for waterfowl and passerine staging. Protection of adjacent buffer areas, including old fields and some potholes through conservation easements is recommended. Additional habitat enhancement may be achieved through DNC plantings on the fields to the west and constructing shallow ponds on east side for brood habitat and pair nesting sites. The site is in need of a management plan to address the entire bay. Potential for tern nesting habitat enhancement by the addition of floating mat substrate. Water chestnut control program should be addressed in planning process. Good opportunity for development of interpretive trail system and environmental education programs.

Resource Inventory

Site name (topo): Hog Island Marsh [Sodus Bay Unit WMA] (Sodus Point)

County: Wayne Town: Huron

Characteristics
cover types: open % emergent 70% shrub 30% forest % mixed %
general description: 62a

Importance
wetland classification: type 2 (SP-5)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Lake Shore Marshes Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction [roads]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
✓ industrial or private point sources [aquatic herbicides used for years, bottom covered with viable tusions (seed pods) of Potamageton crispus; also associated problems of Sodus Bay inc high phosphorus levels]
___ agricultural: fertilizer, pesticides, pasturage
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)
___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [small woods to north, 90% agric & resid]

Functional loss
✓ recreational use of area excludes nesting or feeding [water skiers because of calm spot on bay]
✓ overuse [skiers]
___ inappropriate access
___ marina development [adjacent]
✓ adjacent residential development
✓ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
✓ habitat diversity low
✓ cattail monocultures
___ scrub-shrub dominance
✓ impaired nesting habitat [duc availability]

Strategies

management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
✓ restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
raparian corridor buffers
adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The site is a DEC administered Wildlife Management Area with major habitat value as a limited migratory bird staging area. The development on barrier beach only use septic holding tanks. Need to reduce nutrient load by improving septic systems. Aquatic herbicide application should be phased out. The site has tremendous macrophytic growth. Opportunity exists for reclaimation of filled wetland areas at the site.

Resource Inventory

Site name (topo): Root Swamp (Sodus Point)

County: Wayne **Town:** Huron

Characteristics
cover types: open % emergent % shrub 10 % forest 80 % mixed 10 %
general description: 125a

Importance
wetland classification: type 1 (SP-1)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Lake Shore Marshes Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [40% adjacent orchards]
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [especially south & east]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low [wooded swamp]
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
✓ conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
✓ limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
✓ limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
✓ adjacent buffer areas
✓ shallow pond construction
point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The site is a DEC administered Wildlife Management Area with major habitat value as a wood duck nesting area and as a migratory stopover for black ducks, other waterfowl, and passerines. This site is relatively undisturbed and access should remain limited. Existing buffer areas should be protected by obtaining easements. Ponds needed along stream corridors above the swamp, but generally a site not in need of active management.

Resource Inventory

Site name (topo): East Bay Marshes [WMA unit] (Sodus Point)

County: Wayne **Town:** Huron

Characteristics
cover types: open 20 % emergent 30 % shrub % forest 10 % mixed 40 %
general description: 555a

Importance
wetland classification: type 1 (SP-2)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of East Bay Significant Coastal Habitat

Comments: limited wintering waterfowl use when bay is open

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels
✓ conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation

Degradation
✓ impoundments or alteration of flushing rates [barrier beach inlet dredging]
✓ point and non-point pollution and nutrient loads
— municipal point sources & CSO's
✓ industrial or private point sources [septic systems]
✓ agricultural: fertilizer, pesticides, pasturage
✓ road runoff and storm sewers
— heavy metals (shot, sinkers, other sources)
✓ wetland alteration; channelization; hydrological changes [southern wetlands controlled at roads]
✓ exotic species invasion [purple loosetrife, maybe milfoil]
— conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [80% agric, fields adjacent to wetlands]

Functional loss
— recreational use of area excludes nesting or feeding
— overuse
— inappropriate access
— marina development
✓ adjacent residential development [limited, on east]
✓ introduction of predators with residential development
— other uses impair or disturb habitat

Lack of habitat element
— habitat diversity low
✓ cattail monocultures [large stands in areas]
— scrub-shrub dominance
✓ impaired nesting habitat

Strategies

✓ management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
✓ DNC enhancement
✓ exotic species control
water level controls
rare species management
✓ increase diversity
✓ shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
✓ shallow pond construction
point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The site is a DEC administered Wildlife Management Area with major habitat value as a nesting area for mallards and blue-winged teal, as well as an important site for waterfowl, shorebird, and passerine migration. Needs a management plan to address balancing human and wildlife uses of the site. Enhance dnc on adjacent uplands by planting stiff stemmed grasses. Create riparian corridors. Ponds would be beneficial in adjacent fields for brood habitat and water quality. Other habitat enhancement includes increasing cover type diversity by creating more interspersion of open water in Sheldon Creek and along its west shoreline. Need to control loosestrife.

Resource Inventory

Site name (topo): Brush Marsh (N. Wolcott)

County: Wayne **Town:** Huron

Characteristics
cover types: open % emergent % shrub 60 % forest 20 % mixed 20 %
general description: 95a

Importance
wetland classification: type 2 (NW-1)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Lake Shore Marshes Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
___ conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation

Degradation
✓ impoundments or alteration of flushing rates [barrier beach]
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [pasturage at head; adjacent orchards]
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [80% agric fields adjacent to shrub swamp, pine swamp to west is buffered]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
✓ adjacent residential development [limited to 10 houses to west]

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
✓ scrub-shrub dominance

✓ impaired nesting habitat [DNC availability]

Strategies

management plans

land protection
fee title
✓ conservation easement
✓ management agreements
✓ other

habitat management
✓ artificial nest structures
beaver management
✓ DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
✓ shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
✓ shallow pond construction
point source reduction

Assessment: The site is OGS owned and administered with major habitat value as a breeding area for wood, mallard, teal, and and black duck as well as a migratory staging area for waterfowl and passerines. The site offers good wood duck brood habitat. Part of the site has the first pine swamp occurence in the focus area; this uncommon community type is an important element of the site's diversity. Habitat value may be improved through installation of artificial nest structures for waterfowl. Additional habitat enhancement could be achieved with DNC plantings and ponding in adjacent buffer areas. There is a subdivision near the pine swamp and lots are for sale. Remaining buffer areas should be protected through conservation easements, leases, or management agreements.

Resource Inventory

Site name (topo): Beaver Creek and Marshes (N. Wolcott)

County: Wayne **Town:** Huron

Characteristics

cover types: open 5 % emergent 5 % shrub 30 % forest 55 % mixed 5 %
general description: 419a

Importance

wetland classification: type 1 (NW-5); type 2 (NW-6); type 3 (NW-4)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [stable barrier beach, beaver upstream]
- ___ conversion of wetland: dredging, fill, construction
- ___ conversion due to community succession or sedimentation

Degradation
- ✓ impoundments or alteration of flushing rates [beaver]
- ___ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ___ agricultural: fertilizer, pesticides, pasturage
  - ___ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ✓ exotic species invasion [some purple loosetrife]
- ___ conditions favor disease outbreaks (eg., botulism)
- ___ loss of buffer areas and riparian vegetation

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ___ adjacent residential development
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- ✓ conservation easement
- ✓ management agreements
- ✓ other

habitat management
- artificial nest structures
- ✓ beaver management
- DNC enhancement
- ✓ exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- ✓ limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- ✓ limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The site is a DEC administered Wildlife Management Area with major habitat value as a good production area for wood, mallard, and black duck. The site also houses a small great blue heron rookery at the southeast end of the wetland. The site is well buffered and largely pristine with good cover type diversity. This is a priority area for easements and other protection tools to keep the buffer areas intact and undisturbed. Human use and access should remain limited. The site is in need of little management and beaver are maintaining a productive wetland. May be advantageous to remove the little purple loosestrife that has taken hold at the site.

Resource Inventory

Site name (topo): Port Bay and Wolcott Creek Marshes (N. Wolcott)

County: Wayne **Town:** Huron/Wolcott

Characteristics
cover types: open 50 % emergent 40 % shrub 5 % forest 5 % mixed %
general description: 495a

Importance
wetland classification: type 1 (NW-8)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Port Bay Significant Coastal Habitat

Comments: limited winter waterfowl use when bay is open

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
✓ conversion of wetland: dredging, fill, construction [some channels]
✓ conversion due to community succession or sedimentation

Degradation
✓ impoundments or alteration of flushing rates [at south end]
✓ point and non-point pollution and nutrient loads [very high]
- ✓ municipal point sources & CSO's [Wolcott STP]
- ✓ industrial or private point sources [golf course]
- ✓ agricultural: fertilizer, pesticides, pasturage [golf course to east, ag till to wetland edge in some places; bay has significant algal bloom; septic problems; very high nitrates,solids; chicken manure spreading; Wegman's in watershed; private dumps]
- ___ road runoff and storm sewers
- ___ heavy metals (shot, sinkers, other sources)

✓ wetland alteration; channelization; hydrological changes
✓ exotic species invasion [purple loosestrife]
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [50% wooded, southwest has fields]

Functional loss
✓ recreational use of area excludes nesting or feeding
- ✓ overuse
- ___ inappropriate access
- ✓ marina development
- ✓ adjacent residential development [on east side/along access roads]

✓ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
✓ habitat diversity low
- ✓ cattail monocultures [but still wooded bluffs and potholes]
- ___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- ✓ DNC enhancement
- ✓ exotic species control
- water level controls
- rare species management
- ✓ increase diversity
- ✓ shallow pond construction
- ✓ restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- ✓ watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- ✓ shallow pond construction
- ✓ point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The site has major habitat value as a migratory staging area for waterfowl, shorebirds, and passerines with limited waterfowl nesting. The Bay View camping park has little or no sewage treatment; the sediment and nutrient value of wetlands increasing and may be overloaded. The site lacks good buffer. A comprehensive watershed plan is needed to address sedimentation, nutrient load, buffer enhancement, and human use. This is a popular waterfowl hunting spot. The wetland adjacent areas are in need of DNC enhancement through plantings and riparian corridors should be established. Increasing cover type diversity through adjacent ponds would enhance the habitat.

Resource Inventory

Site name (topo): Marsh East of Port Bay (between roads) (N. Wolcott)

County: Wayne **Town:** Wolcott

Characteristics
cover types: open 10 % emergent 10 % shrub 10 % forest 30 % mixed 40 %
general description: 142a

Importance
wetland classification: type 2 (NW-10,12)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
✓ conversion of wetland: dredging, fill, construction [Village of Wolcott water intake backwashes]
✓ conversion due to community succession or sedimentation [undocumented]

Degradation
✓ impoundments or alteration of flushing rates [beaver, old road]

___ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [old field and active ag; upstream-chicken manure spreading]
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [50% agric, fields adjacent to wetland]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
✓ fee title
✓ conservation easement
✓ management agreements
other

habitat management
artificial nest structures
beaver management
✓ DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
✓ shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
✓ shallow pond construction
point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The site has major habitat value as a highly diverse wetland. There is a stable barrier beach protecting the wetland from the lake levels. Buffer areas need enhancement through DNC plantings and pond construction along edges of the wetland to create pair nesting and brood habitat and improve water quality. Active agriculture is encroaching on area; need buffer setbacks. Site should be protected through acquisition, easements or management agreements.

Resource Inventory

Site name (topo): Red Creek Marsh (N. Wolcott)

County: Wayne **Town:** Wolcott

Characteristics

cover types: open 20 % emergent 45 % shrub 5 % forest 25 % mixed 5 %
general description: 460a

Importance

wetland classification: type 1 (NW-14)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Lake Shore Marshes Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [sometimes dramatic]
- ✓ conversion of wetland: dredging, fill, construction [dirt road crossing]
- ✓ conversion due to community succession or sedimentation

Degradation
- ✓ impoundments or alteration of flushing rates [roads]
- ✓ point and non-point pollution and nutrient loads
  - municipal point sources & CSO's
  - industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [adjacent old field, chicken manure spreading]
  - ✓ road runoff and storm sewers
  - heavy metals (shot, sinkers, other sources)
- wetland alteration; channelization; hydrological changes
- exotic species invasion
- conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [30% agric, several fields close to wetland]

Functional loss
- recreational use of area excludes nesting or feeding
  - overuse
  - ✓ inappropriate access [roads]
  - marina development
  - adjacent residential development
- introduction of predators with residential development
- other uses impair or disturb habitat

Lack of habitat element
- habitat diversity low
  - cattail monocultures
  - scrub-shrub dominance
- impaired nesting habitat

Strategies

management plans

land protection
- fee title
- ✓ conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- ✓ DNC enhancement
- exotic species control
- ✓ water level controls
- rare species management
- increase diversity
- ✓ shallow pond construction
- ✓ restoration / reclaimation
- limit active mangement
- ✓ research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- ✓ shallow pond construction
- point source reduction

Assessment: Impediment comments by Rob Williams 6/20/91. The site is, in part, a DEC administered waterfowl refuge with major habitat value as waterfowl and passerine staging area, waterfowl production area as well as a shorebird/wader roosting area. The site has diverse cover types. Surrounding buffer land should be protected through easements and enhanced with DNC plantings and ponds in order to create additional nesting and brood habitat. The establishment of riparian corridors and the reduction of manure spreading in these areas will improve water quality and reduce sedimentation rates. Correct water level problems associated with road crossings, following a hydrological study; this is a high quality site and major alteration should be scrutinized and approached with caution. Consider road removal to create a refuge area.

Resource Inventory

Site name (topo): Black Creek Wetlands (N. Wolcott/Fair Haven)

County: Wayne **Town:** Wolcott

Characteristics

cover types: open 5 % emergent 15 % shrub 5 % forest 10 % mixed 65 %
general description: 454a

Importance

wetland classification: type 1 (NW-17); type 2 (NW-16; FH-1)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Lake Shore Marshes Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [barrier beach]
✓ conversion of wetland: dredging, fill, construction [two small road crossings]
✓ conversion due to community succession or sedimentation

Degradation
✓ impoundments or alteration of flushing rates [in southern section only]
✓ point and non-point pollution and nutrient loads
— municipal point sources & CSO's
— industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage
✓ road runoff and storm sewers
— heavy metals (shot, sinkers, other sources)

— wetland alteration; channelization; hydrological changes
— exotic species invasion
— conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [mostly old field, 30% agric, buffer lost in southern section]

Functional loss [none, limited human use]
— recreational use of area excludes nesting or feeding
— overuse
— inappropriate access
— marina development
— adjacent residential development

— introduction of predators with residential development
— other uses impair or disturb habitat

Lack of habitat element
— habitat diversity low
— cattail monocultures
— scrub-shrub dominance

— impaired nesting habitat

Strategies

✓ management plans

land protection
✓ fee title
✓ conservation easement
management agreements
✓ other

habitat management
artificial nest structures
✓ beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
✓ limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
✓ limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Impediment comments by Rob Williams (6/20/91). The site is a DEC administered Wildlife Management Area with major habitat value as high quality, diverse production area for waterfowl and an important migratory stopover area for waterfowl, shorebirds, and passerines. Beaver are present. Second occurence of a pine swamp in the focus area. High quality habitat for wood, mallard, and black duck. Extremely diverse with excellent buffers. This is an excellent site and should receive priority attention in seeking land protection of portions of the wetland system and its valuable buffers. Based on the high quality of this area, acquisition or easements for buffers are appropriate. There is classic bog vegetation in portions of the site. An ecological report is available from Andrew Nelson through the planning team. The site needs a management plan which includes limited human use, no active management, leaving beavers alone, and protecting all surrounding buffer areas. This site is a treasure worthy of the utmost protection.

Resource Inventory

Site name (topo): Blind Sodus Bay (Fair Haven)

County: Wayne/Cayuga **Town:** Wolcott/Sterling

Characteristics

cover types: open 85 % emergent 5 % shrub % forest 5 % mixed 5 %
general description: 270a

Importance

wetland classification: type na
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [stable barrier beach]
- ✓ conversion of wetland: dredging, fill, construction [west shore]
- ___ conversion due to community succession or sedimentation

Degradation
- ✓ impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ✓ industrial or private point sources [septic]
  - ___ agricultural: fertilizer, pesticides, pasturage
  - ___ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ✓ exotic species invasion [some loosestrife]
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [70% shoreline modified, 50% agric & resid]

Functional loss
- ✓ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ✓ adjacent residential development [some, south end & west shore]
- ✓ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- ✓ exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: The site major habitat value as a waterfowl staging area. See Andrew Nelson report. Local contact George Maxwell at SUNY Oswego. Aquatic weed control in progress but not permitted. Waterfowl staging area. There is a need to protect existing buffers along the tributary. Waterfowl tend to use Blind Sodus Bay as a rough water refuge during high winds and lake storms. Some boating in bay. Much of shoreline modified. Need to control purple loosestrife.

Resource Inventory

Site name (topo): Little Sodus Bay (Fair Haven)

County: Cayuga **Town:** Sterling

Characteristics
cover types: open 96 % emergent 2 % shrub 2 % forest % mixed %
general description: 465a

Importance
wetland classification: type na
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [open connection to Lake]
- ✓ conversion of wetland: dredging, fill, construction [loss of barrier complex due to inlet]
- ___ conversion due to community succession or sedimentation

Degradation
- impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - municipal point sources & CSO's
  - ✓ industrial or private point sources [septic systems]
  - ✓ agricultural: fertilizer, pesticides, pasturage
  - ✓ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [90% resid, some agric]

Functional loss
- ✓ recreational use of area excludes nesting or feeding
  - ✓ overuse
  - ___ inappropriate access
  - ✓ marina development [boat launch]
  - ✓ adjacent residential development
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- adjacent buffer areas
- shallow pond construction
- ✓ point source reduction

Assessment: The site has major habitat value as a waterfow staging area with substantial waterfowl concentrations from spring breakup to early May and from October through December (including migrant divers, loons, grebes). The site would benefit by septic upgrades along shoreline and creation of riparian corridors to enhance water quality.

Resource Inventory

Site name (topo): Sterling Creek Wetlands (Fair Haven)

County: Cayuga Town: Sterling

Characteristics
cover types: open 10 % emergent 60 % shrub 5 % forest 10 % mixed 15 %
general description: 950a

Importance
wetland classification: type 1 (FH-3)
vulnerable spp. (name and status) records for least & American bitterns, probable harrier
heritage rank and EO: G S EO ;
Designated as part of Sterling Creek & Wetlands Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [open connection to Lake]
✓ conversion of wetland: dredging, fill, construction [in pond area]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
___ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural fertilizer, pesticides, pasturage [50% of adjacent area on upper reaches]
✓ road runoff and storm sewers [at western edge and upstream crossovers]
___ heavy metals (shot, sinkers, other sources)
___ wetland alteration; channelization; hydrological changes
✓ exotic species invasion [controlable loosestrife]
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [at pond, state access area, eastern agric areas]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
✓ inappropriate access [in pond area]
✓ marina development [some residential docks along creek]
___ adjacent residential development
___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
✓ cattail monocultures [central areas only]
___ scrub-shrub dominance
___ impaired nesting habitat

Strategies

✓ management plans

land protection
fee title
✓ conservation easement
✓ management agreements
✓ other

habitat management
artificial nest structures
✓ beaver management
DNC enhancement
✓ exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
✓ interpretive signage
✓ trail or boardwalk
✓ limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: The site is partially administered by OPRHP. Major habitat values are: excellent mallard and blue winged teal production; staging area by waterfowl and passerines in spring and fall in the Pond area, relieving functional loss of Sodus Bay to recreation; also probable shorebird roosting in wetland on migration. Beaver appear important in upper reaches. The site is generally well buffered with large adjacent woodland areas. RG&E study by Saratoga Assoc. due for potential development of eastern buffer area. High potential for use management through state parks development of a management plan that would balance public use with wildlife uses, such as limiting human use at times when migratory bird concentrations occur. The eastern section is in need of stream protection and much of the adjacent area is in old field. The site also has enormous potential for development of an interpretive trail and educational programs. Easements should be sought for the adjacent buffer areas and portions of the wetland not currently in state ownership. Purple loosestrife is still at a controlable level.

Resource Inventory

Site name (topo): Juniper Pond Swamp (Fair Haven)

County: Cayuga **Town:** Sterling

Characteristics
cover types: open 50 % emergent 15 % shrub 35 % forest % mixed %
general description: 30a

Importance
wetland classification: type 1 (FH-3)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Sterling Creek & Wetlands Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
___ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
___ agricultural: fertilizer, pesticides, pasturage
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)
___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [agric fields close to wetland edge at southeast section]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development
___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance
___ impaired nesting habitat

Strategies

✓ management plans

land protection
✓ fee title
✓ conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
✓ limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
✓ limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: The pond may provide limited value as a waterfowl staging area; more useful for passerines. The major value of this area is based on rare community and high structural diversity. The pond is separated from the lake by a stable barrier. Large lakeshore bluffs and second growth forest are immediately to the west. A small multiple freshwater interdunal swale community is to the east, one of only 2 known occurrences in NYS. Also a likely occurrence of bog vegetation. Land protection through acquisition or easement by a conservation entity is recommended.

Resource Inventory

Site name (topo): Jenzvolt.Road Swamp (West Ninemile Point/Fair Haven)

County: Cayuga Town: Sterling

Characteristics
cover types: open 10 % emergent % shrub % forest % mixed 90 %
general description: 18a

Importance
wetland classification: type 1 (FH-1)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
___ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [limited, only to south]
✓ road runoff and storm sewers [at south end]
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
___ loss of buffer areas and riparian vegetation [excellent wooded buffers along edge, 80% agric fields]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
✓ conservation easement
management agreements
other

habitat management
✓ artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
✓ limit active mangement
✓ research prior to action

public use control
interpretive signage
trail or boardwalk
✓ limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Little information exists on this excellent area which exhibits habitat value for breeding wood ducks and provides probable roosting habitat for migratory passerines and raptors. There is likely some bog vegetation present at the site. The adjacent buffer area should be protected, possibly through conservation easement. The site has also been identified as having potential for the installation of artificial nest structures.

Resource Inventory

Site name (topo): Wheeler Road Swamp (West Ninemile Point)

County: Cayuga Town: Sterling

Characteristics
cover types: open % emergent % shrub % forest 100 % mixed %
general description: 115a

Importance
wetland classification: type 3 (WN-3)
vulnerable spp. (name and status) potential red-shouldered hawk nest
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [substantially upstream]
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
___ loss of buffer areas and riparian vegetation

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
✓ fee title
✓ conservation easement
✓ management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
✓ limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
✓ limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: The site offers habitat value as an area with concentrations of passerines, wood duck and mallard production. Red-headed woodpecker record. Excellent buffers, close to pristine. Owned by RG&E. Seek acquisition or easements for swamp and buffers. Access should remain limited.

Resource Inventory

Site name (topo): Dogwood Road Swamp (West Ninemile Point)

County: Cayuga **Town:** Sterling

Characteristics

cover types: open % emergent % shrub % forest 95 % mixed 5 %
general description: 65a

Importance

wetland classification: type 2 (WN-2); type 3 (WN-1)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
✓ conversion of wetland: dredging, fill, construction [adjacent agric]
___ conversion due to community succession or sedimentation

Degradation
✓ impoundments or alteration of flushing rates [road fill and culvert to north]
___ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [particularly to east]
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

✓ wetland alteration; channelization; hydrological changes [field edge, channel stream to north]
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [80% of adjacent area tilled]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
✓ conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
✓ water level controls
rare species management
increase diversity
✓ shallow pond construction
✓ restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
✓ shallow pond construction
point source reduction

Assessment: The site has habitat value as a small great blue heron rookery (three in 1991, up to 15 in past years) and an area with wood duck and mallard production. Small numbers of migratory ring-necked ducks use the area. Series of sedimentation ponds is needed to improve habitat values and water quality. Based on level od disturbance, the site has hydrological management needs, perhaps potential for water level management. Adjacent buffers and corridors need to be restored. Seek easements on the swamp and surrounding buffer area.

Resource Inventory

Site name (topo): Ninemile Creek Swamp (West Ninemile Point/Oswego West)

County: Cayuga **Town:** Sterling

Characteristics

cover types: open 10 % emergent 25 % shrub % forest % mixed 65 %
general description: 55a

Importance

wetland classification: type na
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [inlet]
- ✓ conversion of wetland: dredging, fill, construction [California road]
- ___ conversion due to community succession or sedimentation

Degradation
- ___ impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ✓ industrial or private point sources [septic systems]
  - ___ agricultural: fertilizer, pesticides, pasturage
  - ___ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [at and along road crossings, fields to east]

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ✓ adjacent residential development [trailers]
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- ✓ point source reduction

Assessment: The site provides habitat for migratory waterfowl and passerines with significant use by ring-necks in migration. Great blue heron feeding. No known waterfowl production. Wooded to west. Habitat enhancement opportunities at the site include establishment of riparian corridors, upgrading septic systems, and enhancing adjacent buffer with tree and shrub plantings.

Resource Inventory

Site name (topo): Eightmile Creek (Oswego West)

County: Cayuga Town: Sterling

Characteristics
cover types: open 100 % emergent % shrub % forest % mixed %
general description: 12a

Importance
wetland classification: type na
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [inlet]
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
___ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [mostly old field, active to east & north]
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [mostly at northern area]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
✓ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: The site has primary habitat value as a migratory stopover and wintering area. No significant waterfowl production. The site is in need of some stream corridor management to protect riparian vegetation and reduce nutrient loading. Enhance adjacent upland buffer; this may include tree and shrub plantings.

Resource Inventory

Site name (topo): West Lake Road Swamp (Oswego West)

County: Oswego **Town:** Oswego

Characteristics

cover types: open % emergent % shrub 20 % forest 40 % mixed 40 %
general description: 45a

Importance

wetland classification: type 2 (OW-10)
vulnerable spp. (name and status) large black tern colony in 50's
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [marsh flooded in 50's]
- ___ conversion of wetland: dredging, fill, construction
- ___ conversion due to community succession or sedimentation

Degradation
- ✓ impoundments or alteration of flushing rates [diked]
- ✓ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ___ agricultural: fertilizer, pesticides, pasturage
  - ✓ road runoff and storm sewers [along north side]
  - ___ heavy metals (shot, sinkers, other sources)
- ✓ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [30% active agric to west]

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ___ adjacent residential development
- ___ introduction of predators with residential development
- ✓ other uses impair or disturb habitat [managed for ducks, but loss of tern habitat]

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- ✓ shallow pond construction
- point source reduction

Assessment: The site has major habitat value as a waterfowl stopover during migrations. Owned by Herb Van Schoick. A knowledgeable contact on the history of the site is John Weeks, Centers for Nature Education, Baltimore Woods (Syracuse resident). Potential for ponding along tributary to provide additional buffer and enhance water quality.

Resource Inventory

Site name (topo): Snake Swamp (Oswego West)

County: Oswego **Town:** Oswego

Characteristics

cover types: open 10 % emergent % shrub 30 % forest 30 % mixed 30 %
general description: 148a

Importance

wetland classification: type 1 (OW-2); type 2 (OW-15)
vulnerable spp. (name and status) black-crowned night heron aggregation
heritage rank and EO: G S EO ;
Designated as part of Snake Creek Marsh Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [modified by town at road culverts]
- ✓ conversion of wetland: dredging, fill, construction [roads to west, southeast, & across]
- ✓ conversion due to community succession or sedimentation [in south & west]

Degradation
- ✓ impoundments or alteration of flushing rates [due to road impairing southern part]
- ___ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ___ agricultural: fertilizer, pesticides, pasturage
  - ✓ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ✓ exotic species invasion [loosestrife]
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [entire area isolated island.by roads and residences, adjacent area buffered, 50% agric & resid]

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ✓ adjacent residential development [suburban, university spillover]
- ✓ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

✓ management plans

land protection
- fee title
- ✓ conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- ✓ restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- ✓ watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: The site is partly owned by Save Oswego County and has major habitat value as an important production area for wood, mallard, and black duck. An NSF study of the area was done by Gerry Smith. The area needs a management plan to address hydrological needs and enhancing riparian buffers. The redesign and/or reconstruction of road culverts is needed to restore the hydrology of the site. Easements should be sought for buffers and a riparian corridor should be established with some vegetative enhancement. Developed areas should include buffer-protecting standards.

Resource Inventory

Site name (topo): Rice Creek Swamp (Oswego West)

County: Oswego **Town:** Oswego

Characteristics
cover types: open 25 % emergent % shrub 75 % forest % mixed %
general description: 28a

Importance
wetland classification: type 1 (OW-3)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [in south portions]
✓ conversion of wetland: dredging, fill, construction [roads]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [adjacent lawn with no buffer]
___ road runoff and storm sewers
✓ heavy metals (shot, sinkers, other sources)

✓ wetland alteration; channelization; hydrological changes [road bisects wetlands]
✓ exotic species invasion [some loosestrife]
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [area isolated wildlife island with 80% resid & agric]

Functional loss
✓ recreational use of area excludes nesting or feeding
✓ overuse [trampled by shoreline fishing]
___ inappropriate access
___ marina development
✓ adjacent residential development [additional housing developments scheduled]

___ introduction of predators with residential development
✓ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
✓ conservation easement
✓ management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
✓ exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
✓ interpretive signage
✓ trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: The site has some habitat value as a migratory stopover for waterfowl and still receives some duck use despite disturbances. The site has potential for interpretive signage and other educational materials and programs. Habitat enhancement could be acheived through protecting the remaining buffer areas through conservation easements. Developed areas should include buffer-protecting standards.

Resource Inventory

Site name (topo): Oswego River (Oswego West)

County: Oswego Town: Oswego

Characteristics
cover types: open 100 % emergent % shrub % forest % mixed %
general description: 55a

Importance
wetland classification: type na
vulnerable spp. (name and status)
heritage rank and EO: G · S EO ;
Designated as Oswego River Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
✓ conversion of wetland: dredging, fill, construction [bulkhead]
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
  ✓ municipal point sources & CSO's
  ✓ industrial or private point sources
  ✓ agricultural: fertilizer, pesticides, pasturage [upriver]
  ✓ road runoff and storm sewers
  ✓ heavy metals (shot, sinkers, other sources) [see RAP]
✓ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation

Functional loss
✓ recreational use of area excludes nesting or feeding
  ✓ overuse [winter boating]
  ___ inappropriate access
  ✓ marina development
  ___ adjacent residential development
___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
✓ habitat diversity low
  ___ cattail monocultures
  ___ scrub-shrub dominance
✓ impaired nesting habitat

Strategies

management plans

land protection
  fee title
  conservation easement
  management agreements
  other

habitat management
  artificial nest structures
  beaver management
  DNC enhancement
  exotic species control
  water level controls
  rare species management
  increase diversity
  shallow pond construction
  restoration / reclaimation
  limit active mangement
  research prior to action

public use control
  ✓ interpretive signage
  ✓ trail or boardwalk
  limit human use / access

water quality improvement
  ✓ watershed planning
  riparian corridor buffers
  adjacent buffer areas
  shallow pond construction
  ✓ point source reduction

Assessment: The site is one of the most important waterfowl overwintering areas in this area of lake (open water from power plant and river flow). The site also provides sheltered open water during inclement weather; particularly important during freeze up. Support RAP and encourage education programs focused on the river based habitat values for waterfowl and reducing point sources to the river.

Resource Inventory

Site name (topo): Teal Marsh (Oswego East)

County: Oswego **Town:** Scriba/ City of Oswego

Characteristics
cover types: open 5 % emergent % shrub 25 % forest 30 % mixed 40 %
general description: 275a

Importance
wetland classification: type 1 (OE-27,28,58)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Teal Marsh Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
✓ conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation [areas seem to be drying out]

Degradation
✓ impoundments or alteration of flushing rates [caused by road fill transects]
✓ point and non-point pollution and nutrient loads
municipal point sources & CSO's
✓ industrial or private point sources [septic systems]
agricultural: fertilizer, pesticides, pasturage
✓ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

✓ wetland alteration; channelization; hydrological changes [drainage change with railroad to south]
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [10% resid, mostly old field south of RR]

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
✓ adjacent residential development [along barrier]

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

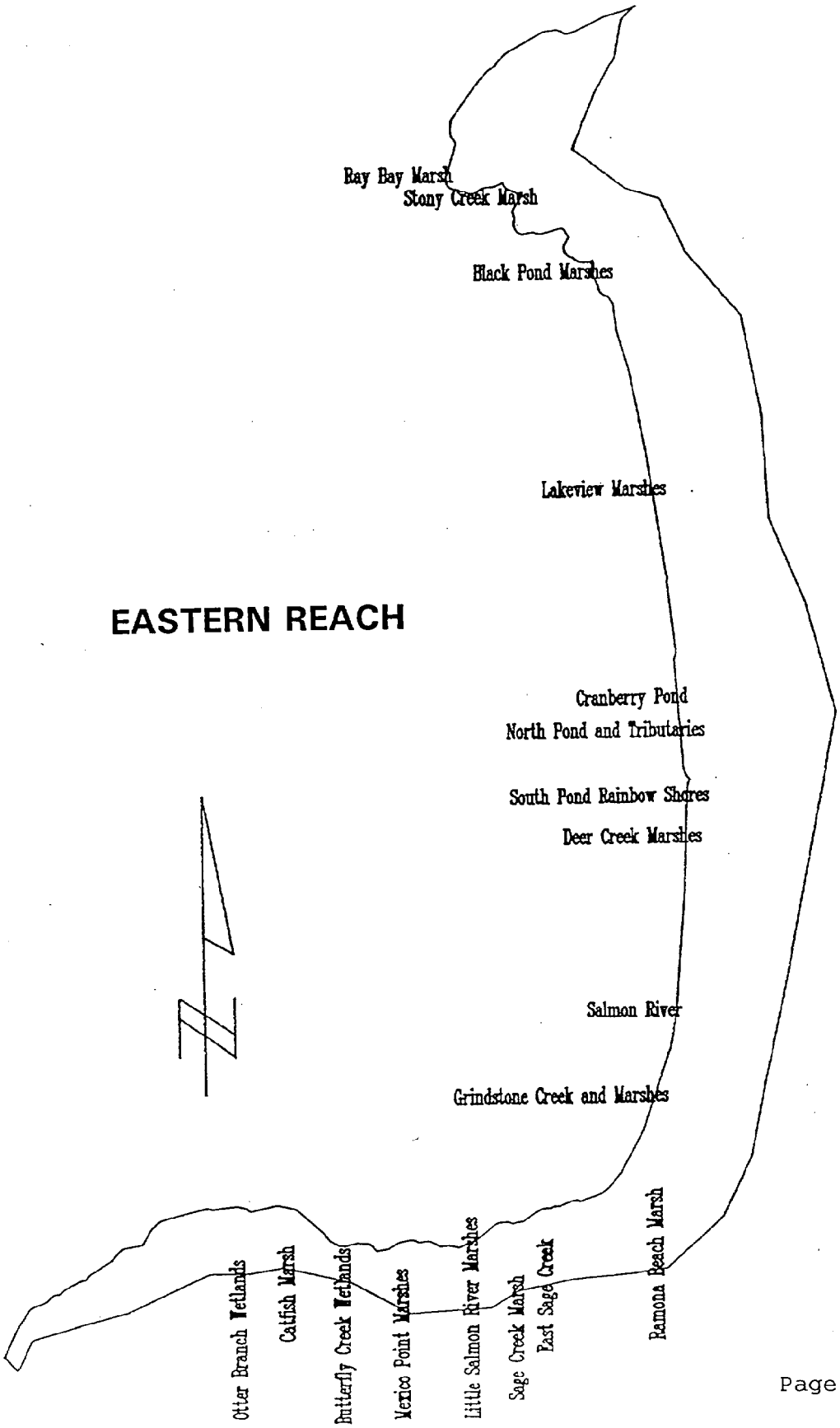
land protection
fee title
✓ conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
✓ water level controls
rare species management
✓ increase diversity
✓ shallow pond construction
✓ restoration / reclaimation
limit active mangement
✓ research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
✓ shallow pond construction
point source reduction

Assessment: The site has major habitat value as a migratory stopover area with some records of blue-winged teal and wood duck nesting. Generally a poorly known area; but high quality and diverse. Wine Creek area to west is heavily disturbed. Opportunities exist for ponding to west or creating an inlet to lake in west section in order to increase water levels; Removal of road fills and redesigning and replacing road culverts may also help restore hydrology here. Easements should be sought for buffer areas and the wetland. Riparian corridor should be established.


Ray Bay Marsh
Stony Creek Marsh
Black Pond Marshes
Lakeview Marshes
EASTERN REACH
Cranberry Pond
North Pond and Tributaries
South Pond Rainbow Shores
Deer Creek Marshes
Salmon River
Grindstone Creek and Marshes
Otter Branch Wetlands
Catfish Marsh
Butterfly Creek Wetlands
Mexico Point Marshes
Little Salmon River Marshes
Sage Creek Marsh
East Sage Creek
Ramona Beach Marsh

Lake Shore Marshes Focus Area - Eastern Reach Sites

Number	County	Inventory Unit Name
48	Oswego	Otter Branch Wetlands
49	Oswego	Catfish Marsh
50	Oswego	Butterfly Creek Wetlands
51	Oswego	Mexico Point Marshes
52	Oswego	Little Salmon River Marshes
53	Oswego	Sage Creek Marsh
54	Oswego	East Sage Creek
55	Oswego	Ramona Beach Marsh
56	Oswego	Grindstone Creek and Marshes
57	Oswego	Salmon River
58	Oswego	Deer Creek Marshes
59	Oswego	South Pond Rainbow Shores
60	Oswego/Jefferson	North Pond and Tributaries
61	Jefferson	Cranberry Pond
62	Jefferson	Lakeview Marshes
63	Jefferson	Black Pond Marshes
64	Jefferson	Stony Creek Marsh
65	Jefferson	Ray Bay Marsh

Resource Inventory

Site name (topo): Otter Branch Wetlands (Texas)

County: Oswego **Town:** New Haven

Characteristics
cover types: open 10 % emergent % shrub % forest 70 % mixed 20 %
general description: 45a

Importance
wetland classification: type 2 (TX-2,5)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
___ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
___ agricultural: fertilizer, pesticides, pasturage
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
___ loss of buffer areas and riparian vegetation

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
✓ conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
✓ research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: The site is a pristine, small, unknown area; difficult to discern from air with well buffered woodlands; having probable habitat value as wood duck production area. Easements should be sought to protect wetland and buffer areas.

Resource Inventory

Site name (topo): Catfish Marsh (Texas)

County: Oswego **Town:** New Haven

Characteristics

cover types: open 25 % emergent % shrub % forest % mixed 75 %
general description: 15a

Importance

wetland classification: type 1 (TX-7)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss

___ fluctuation in water levels
✓ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation

___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
___ agricultural: fertilizer, pesticides, pasturage
✓ road runoff and storm sewers [marina access]
___ heavy metals (shot, sinkers, other sources)

✓ wetland alteration; channelization; hydrological changes [impounded stream]
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation

Functional loss

✓ recreational use of area excludes nesting or feeding
✓ overuse [substantial shoreline dockage]
___ inappropriate access
✓ marina development [characterized as insensitive]
✓ adjacent residential development [cottage colony]

___ introduction of predators with residential development
✓ other uses impair or disturb habitat

Lack of habitat element

___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
✓ limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Most recorded values lost to recreational access and use. Low priority for management.

Resource Inventory

Site name (topo): Butterfly Creek Wetlands (Texas)

County: Oswego **Town:** New Haven

Characteristics

cover types: open 5 % emergent 10 % shrub 35 % forest 35 % mixed 15 %
general description: 400a

Importance

wetland classification: type 1 (TX-8)
vulnerable spp. (name and status) least bittern and black tern records
heritage rank and EO: G S EO ;
Designated as part of Butterfly Creek Wetlands Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ___ fluctuation in water levels
- ✓ conversion of wetland: dredging, fill, construction [roadways constructed in 60's & 70's]
- ✓ conversion due to community succession or sedimentation [shrubs to east]

Degradation
- ✓ impoundments or alteration of flushing rates [related to roadways]
- ✓ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [40% orchards and fields]
  - ___ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ✓ wetland alteration; channelization; hydrological changes [eastern roads]
- ✓ exotic species invasion [developing major loosestrife problem]
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [10% to west, orchard adjacent to wetlands]

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ✓ adjacent residential development [to east on barrier]
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ✓ scrub-shrub dominance [in eastern portion]
- ___ impaired nesting habitat

Strategies

management plans

land protection
- ✓ fee title
- ✓ conservation easement
- ✓ management agreements
- ✓ other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- ✓ exotic species control
- ✓ water level controls
- rare species management
- increase diversity
- shallow pond construction
- ✓ restoration / reclaimation
- limit active mangement
- ✓ research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- ✓ watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: The site is privately owned, mostly leased to Butterfly Swamp Waterfowl Association. Major habitat value as a waterfowl production area and an important migratory stopover area for passerines. Currently one of the best areas, but could become the worst with improper management. Largest of only two freshwater dune and interdunal swale community on lake. Enhancement through restoring hydrology which is currently impeded by fill from eastern roads. Substantial buffer should be protected. Protection of this quality site through fee title, easements, or management agreements is recommended.

Resource Inventory

Site name (topo): Mexico Point Marshes (Texas)

County: Oswego Town: Mexico

Characteristics

cover types: open 5 % emergent 5 % shrub 45 % forest 45 % mixed %
general description: 55a

Importance

wetland classification: type 1 (TX-9,10)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
- ___ fluctuation in water levels [not connected to lake]
- /___ conversion of wetland: dredging, fill, construction [eastern portion bisected by roadway]
- ___ conversion due to community succession or sedimentation

Degradation
- /___ impoundments or alteration of flushing rates [uncertain of roadway effects]
- /___ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - /___ agricultural: fertilizer, pesticides, pasturage [to south, field conversion for soccer]
  - /___ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- /___ loss of buffer areas and riparian vegetation [70% agric fields]

Functional loss
- /___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - /___ adjacent residential development [cottages to east]
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - /___ scrub-shrub dominance [on western portion]
- ___ impaired nesting habitat

Strategies

/ management plans

land protection
- fee title
- conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- / interpretive signage
- / trail or boardwalk
- limit human use / access

water quality improvement
- / watershed planning
- / riparian corridor buffers
- / adjacent buffer areas
- shallow pond construction
- / point source reduction

Assessment: Most of western section of the site is owned by OPRHP and leased to Town for management as a nature center and park (plan under preparation) with habitat value as a migratory staging area. There is a natural stand of mature white pines to the east, winter eagle roosting observed. The site should have a management plan that addresses the attributes of the area for an interpretive nature center, including ensuring the preservation of the stand of white pines and adjacent buffer. Interpretive signage and trails, including boardwalks, should be sited in an environmentally sensitive manner. The area has a simple watershed which can be restored along intermittent tributaries.

Resource Inventory

Site name (topo): Little Salmon River Marshes (Texas/New Haven)

County: Oswego **Town:** Mexico

Characteristics

cover types: open 35 % *emergent* 65 % *shrub* % *forest* % *mixed* %
general description: 60a

Importance

wetland classification: type 1 (TX-11)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Little Salmon River Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [connected to lake]
✓ conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation

Degradation
impoundments or alteration of flushing rates
✓ point and non point pollution and nutrient loads
— municipal point sources & CSO's
— industrial or private point sources
— agricultural: fertilizer, pesticides, pasturage
✓ road runoff and storm sewers
— heavy metals (shot, sinkers, other sources)

✓ wetland alteration; channelization/other hydrological changes [inlet stabilized, marina channels]
— exotic species invasion
— conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [camps, roadways, launch ramps]

Functional loss
✓ recreational use of area excludes nesting or feeding
✓ overuse [large boat traffic]
✓ inappropriate access
✓ marina development
✓ adjacent residential development

✓ introduction of predators with residential development
✓ other uses impair or disturb habitat

Lack of habitat element
— habitat diversity low
— cattail monocultures
— scrub-shrub dominance

— impaired nesting habitat

Strategies

management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
✓ limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
adjacent buffer areas
shallow pond construction
✓ point source reduction

Assessment: The remaining habitat values are based upon shelter for waterfowl and other birds. The area is heavily disturbed at all times except for during foul weather. Riparian corridors need protection to preserve wetland values. This site is an example of mismanagement where human use has precluded most former wildlife use. Low priority for management.

Resource Inventory

Site name (topo): Sage Creek Marsh (Pulaski)

County: Oswego **Town:** Mexico

Characteristics

cover types: open 10 % emergent 80 % shrub 10 % forest % mixed %
general description: 35a

Importance

wetland classification: type 2 (PI-5)
vulnerable spp. (name and status): black tern (SC)
heritage rank and EO: G4 S2 EO D ;
Designated as part of Sage Creek Marsh Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [sporadic connection to lake]
- ___ conversion of wetland: dredging, fill, construction
- ___ conversion due to community succession or sedimentation

Degradation
- ___ impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [fields to east, many upstream fields now fallow]
  - ✓ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ✓ exotic species invasion [developing loosestrife problem]
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [fields and road to east, 40% agric]

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ___ adjacent residential development
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- ✓ conservation easement
- management agreements
- other

habitat management
- ✓ artificial nest structures
- beaver management
- DNC enhancement
- ✓ exotic species control
- water level controls
- ✓ rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- ✓ limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: The site is a small, relatively pristine area with major habitat value for waterfowl and heron migration (200-300 wood duck roost in fall); also mallards, teal and wood duck nesting.). Three acres owned by Onondaga Audubon. May enhance black tern habitat by using artificial nesting platforms or creating floating mats. Conservation easements for the wetland and buffer areas is recommended. Protection of buffer and expanding riparian corridors would enhance wildlife values. Human use should be limited at the site.

Resource Inventory

Site name (topo): East Sage Creek Wetlands (Pulaski)

County: Oswego **Town:** Mexico/Richland

Characteristics

cover types: open 10% emergent % shrub 85 % forest 5 % mixed %
general description: 50a

Importance

wetland classification: type 2 (PI-6)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as part of Sage Creek Marsh Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [connected to lake]
- ✓ conversion of wetland: dredging, fill, construction [behind barrier]
- ___ conversion due to community succession or sedimentation

Degradation
- ___ impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ✓ industrial or private point sources [septic]
  - ___ agricultural: fertilizer, pesticides, pasturage
  - ___ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ✓ exotic species invasion [loosestrife]
- ___ conditions favor disease outbreaks (eg., botulism)
- ___ loss of buffer areas and riparian vegetation [surrounded by woodland]

Functional loss
- ✓ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ___ inappropriate access
  - ___ marina development
  - ✓ adjacent residential development
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

management plans

land protection
- fee title
- ✓ conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- ✓ exotic species control
- water level controls
- rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- research prior to action

public use control
- interpretive signage
- trail or boardwalk
- limit human use / access

water quality improvement
- watershed planning
- riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: Habitat values at this site are unknown. No road fill or bridge should be allowed across mouth of wetland at lake. Road and cottage encroachment along shoreline. Adjacent buffer easements recommended. Need to assess habitat value for waterfowl and/or other wildlife. Control of loosestrife recommended.

Resource Inventory

Site name (topo): Ramona Beach Wetlands (Pulaski)

County: Oswego **Town:** Mexico/Richland

Characteristics
cover types: open 5 % emergent 50 % shrub 35 % forest 10 % mixed %
general description: 100a

Importance
wetland classification: type 2 (PI-7)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;
Designated as Ramona Beach Marsh Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [Sage creek road crossing - blockage can lead to radical water level changes]
✓ conversion of wetland: dredging, fill, construction [road at mouth]
___ conversion due to community succession or sedimentation

Degradation
✓ impoundments or alteration of flushing rates [road]
✓ point and non-point pollution and nutrient loads
  ___ municipal point sources & CSO's
  ✓ industrial or private point sources [septic]
  ✓ agricultural: fertilizer, pesticides, pasturage [20% agric to east]
  ___ road runoff and storm sewers
  ___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
✓ exotic species invasion [early loosestrife]
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation

Functional loss
___ recreational use of area excludes nesting or feeding
  ___ overuse
  ___ inappropriate access
  ___ marina development
  ✓ adjacent residential development [cottages along barrier]

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
  ___ cattail monocultures
  ___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

✓ management plans

land protection
  fee title
  conservation easement
  management agreements
  other

habitat management
  artificial nest structures
  beaver management
  DNC enhancement
  ✓ exotic species control
  ✓ water level controls
  rare species management
  increase diversity
  shallow pond construction
  restoration / reclaimation
  limit active mangement
  research prior to action

public use control
  interpretive signage
  trail or boardwalk
  ✓ limit human use / access

water quality improvement
  ✓ watershed planning
  ✓ riparian corridor buffers
  ✓ adjacent buffer areas
  shallow pond construction
  ✓ point source reduction

Assessment: The site is a diverse, high quality area with major habitat value as an important area for migratory passerines with records of hooded merganser, black tern, American and least bittern. Diverse upland woods. Adjacent areas are in need of protection through easements. Sage Creek road blockage of wetland should be eliminated through improved culverting. As with all highly diverse areas with little disturbance, additional human use should be limited at the site.

Resource Inventory

Site name (topo): Grindstone Creek and Marshes (Pulaski)

County: Oswego Town: Richland

Characteristics
cover types: open 30 % emergent 60 % shrub 10 % forest % mixed %
general description: 125a

Importance
wetland classification: type 1 (PI-3)
vulnerable spp. (name and status): black tern (SC)
heritage rank and EO: G4 S2 EO D ;
Designated as part of Grindstone Creek & Marsh Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [connected to lake]
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [along creek]
✓ road runoff and storm sewers [associated with boat launches, pkwy]
___ heavy metals (shot, sinkers, other sources)
wetland alteration; channelization; hydrological changes
✓ exotic species invasion [some loosestrife]
conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [parking to east, residential to west]

Functional loss
___ recreational use of area excludes nesting or feeding
overuse
✓ inappropriate access [out of scale parking lot]
marina development
✓ adjacent residential development [limited private campground]

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
✓ conservation easement
management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
✓ exotic species control
water level controls
✓ rare species management
increase diversity
shallow pond construction
restoration / reclaimation
✓ limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: The site has major habitat value as a migratory staging area for waterfowl, shorebirds, and passerines with some wood, mallard, and black duck production; and records for black tern and northern harrier. The emergent portions of the wetlands include substantial broadleaf vegetation (such as pickerelweed). There is a substantial amount of adjacent buffer away from lakeshore developments. Protection of the adjacent buffer lands through easements is recommended; including no expansion of the parking lot to the east. Potential exists for black tern habitat enhancement through artificial nest structures. Active management should be limited due to the existing high site quality.

Resource Inventory

Site name (topo): Salmon River (Pulaski)

County: Oswego **Town:** Richland

Characteristics
cover types: open 40 % emergent 40 % shrub 5 % forest 10 % mixed 5 %
general description: 410a

Importance
wetland classification: type 1 (PI-2)
vulnerable spp. (name and status): black tern (SC)
heritage rank and EO: G4 S2 EO C ;
Designated as part of Salmon River Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [hydro regulation]
✓ conversion of wetland: dredging, fill, construction [river mouth]
___ conversion due to community succession or sedimentation

Degradation
impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [adjacent fields and residential lawns]
✓ road runoff and storm sewers [Route 3 bridge, parallel roads, boat ramps]
✓ heavy metals (shot, sinkers, other sources) [acidified runoff]

✓ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
___ loss of buffer areas and riparian vegetation

Functional loss
✓ recreational use of area excludes nesting or feeding
✓ overuse [with fishing]
___ inappropriate access
✓ marina development [expected to become intense]
✓ adjacent residential development [cottages ring river mouth]

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

✓ management plans

land protection
fee title
conservation easement
management agreements
other

habitat management
✓ artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
✓ rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
✓ watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
✓ point source reduction

Assessment: Habitat value as an excellent spring migratory stopover at this site has been largely eliminated due to boating uses; the site still has value as a waterfowl wintering area. The site has an adjacent pine grove, one of three in the entire study area. There is continued threat of harbor development. Black terns may benefit from some management through installation of artificial nesting structures. A management plan is needed to balance the conflicting uses and to address adjacent buffer area protection and water quality issues. Salmon River is a high quality cold-water tributary which needs protection through a watershed plan, and protective standards for riparian corridors and adjacent buffer.

Resource Inventory

Site name (topo): Deer Creek Marshes (Pulaski)

County: Oswego **Town:** Richland/Sandy Creek

Characteristics

cover types: open 5 % emergent 60 % shrub 30 % forest 5 % mixed %
general description: 1040a

Importance

wetland classification: type 1 (PI-1)
vulnerable spp.: Cryan's buckmoth; inland poor fen; creeping sedge; swamp pink; houghton sedge
heritage rank and EO: G1 S1 A; G4 S3 A; G5 S1 A; G4 S2 A; G5 S1 B
Designated as part of Deer Creek Marsh Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [creek is seasonally blocked by sand]
- ✓ conversion of wetland: dredging, fill construction [roads traverse wetland]
- ___ conversion due to community succession or sedimentation

Degradation
- ✓ impoundments or alteration of flushing rates [roadways]
- ✓ point and non-point pollution and nutrient loads
  - municipal point sources & CSO's
  - ✓ industrial or private point sources [septic, golf course]
  - agricultural: fertilizer, pesticides, pasturage
  - ✓ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [dune vegetation trampled, campground]

Functional loss
- ✓ recreational use of area excludes nesting or feeding
  - ✓ overuse
  - ✓ inappropriate access [from campgrounds, public boat launches appropriately scaled to area]
  - marina development
  - ✓ adjacent residential development [large campground]
- ✓ introduction of predators with residential development
- ✓ other uses impair or disturb habitat

Lack of habitat element
- ✓ habitat diversity low [but contributes to rarity of area in southern portion]
  - ✓ cattail monocultures [in larger northern portion of area]
  - ___ scrub-shrub dominance
- ✓ impaired nesting habitat [acidic fen provides habitat for several rare species]

Strategies

✓ management plans

land protection
- ✓ fee title
- ✓ conservation easement
- ✓ management agreements
- ✓ other

habitat management
- artificial nest structures
- ✓ beaver management
- DNC enhancement
- exotic species control
- water level controls
- ✓ rare species management
- ✓ increase diversity
- ✓ shallow pond construction
- restoration / reclaimation
- ✓ limit active mangement
- research prior to action

public use control
- ✓ interpretive signage
- ✓ trail or boardwalk
- ✓ limit human use / access

water quality improvement
- ✓ watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- ✓ shallow pond construction
- point source reduction

Assessment: Partly a DEC Wildlife Management Area with major habitat value as a rare acidic fen community with associated rare species as well as limited waterfowl nesting and staging. Southern area is unsuitable for waterfowl management, as management would lead to loss of acidic fen community. Sixteen acres of fen area owned by The Nature Conservancy. Limit management activities in the fen area. Ponds or other means of increasing structural diversity may enhance northern monoculture area. Beaver currently enhance waterfowl production in northern area. A management plan for the state owned portions of the site is needed. Seek protection of adjacent wooded buffers and the fen area through easements or acquisition. Establish Deer Creek corridor by fencing pastures and constructing ponds to east of Route 3 trib.

Resource Inventory

Site name (topo): South Pond Rainbow Shores (Pulaski/Ellisburg)

County: Oswego **Town:** Sandy Creek

Characteristics

cover types: open 60 % emergent 15 % shrub % forest % mixed 25 %
general description: 485a

Importance

wetland classification: type 1 (PI-1; EL-9,10); type 2 (EL-7)
vulnerable spp.: Cryan's buckmoth; poor fen; rich shrub fen; swamp pink; creeping sedge; black tern
heritage rank/EO: G1 S1 A; G4 S2 AB; G3G4 S1S2 A; G4 S2 A; G5 S1 A; G4 S2 C
Designated as part of North & South Sandy Ponds Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels
- ✓ conversion of wetland: dredging, fill, construction [some boat channels, road construction]
- ___ conversion due to community succession or sedimentation

Degradation
- impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - municipal point sources & CSO's
  - ✓ industrial or private point sources [septic systems, lawns]
  - ✓ agricultural: fertilizer, pesticides, pasturage [several fields to northwest, sandy creek watershed]
  - ✓ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- wetland alteration; channelization; hydrological changes
- ✓ exotic species invasion [pockets of loosestrife]
- conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation [multiple docks and lawns]

Functional loss
- ✓ recreational use of area excludes nesting or feeding
  - ✓ overuse [multiple docks and cottages]
  - ___ inappropriate access
  - ___ marina development
  - ✓ adjacent residential development
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ✓ habitat diversity low [fen adds to importance of area, remainder dominated by open water]
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

✓ management plans

land protection
- fee title
- ✓ conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- ✓ exotic species control
- water level controls
- ✓ rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- ✓ limit active mangement
- ✓ research prior to action

public use control
- interpretive signage
- trail or boardwalk
- ✓ limit human use / access

water quality improvement
- ✓ watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- ✓ point source reduction

Assessment: The site has habitat value as a waterfowl staging area in the fall (formerly from spring through fall, but lost due to human use) and the southern wetland area includes rare acidic fen community and associated species. The rare wetland community is not amenable to waterfowl management since management would lead to loss of acidic conditions. Possibility for breach is highest in this area, leading to concerns about increased water level fluctuation and water chemistry changes. The site needs a management plan to address the need for protection of adjacent areas through easements, enhancement of riparian corridor, controlling loosestrife, and limiting human use and active management in a manner sensitive to the rare species and natural community at the site. Restore Sandy Creek corridor and watershed.

Resource Inventory

Site name (topo): North Pond and Tributaries (Ellisburg)

County: Oswego/Jefferson **Town:** Sandy Creek/Ellisburg

Characteristics

cover types: open 70 % emergent 10 % shrub 5 % forest 10 % mixed 5 %
general description: 2940a

Importance

wetland classification: type 1 (EL-1,2,5,6,9); type 2 (EL-4,8,11,12); type 3 (EL-3)
vulnerable spp. (name and status): black tern (SC); common tern (one of two US sites on Lake Ontario)
heritage rank and EO: G4 S2 EO C ;
Designated as part of Sandy Pond Tributaries Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [open connection with lake, limits tern nesting]
- ✓ conversion of wetland: dredging, fill construction [dune migration at blowouts]
- ___ conversion due to community succession or sedimentation

Degradation
- ___ impoundments or alteration of flushing rates
- ✓ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [four small tribs with open pasturage]
  - ✓ road runoff and storm sewers [Route 3 runoff to creeks or wetlands]
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ___ exotic species invasion
- ___ conditions favor disease outbreaks (eg., botulism)
- ✓ loss of buffer areas and riparian vegetation

Functional loss
- ✓ recreational use of area excludes nesting or feeding
  - ✓ overuse
  - ✓ inappropriate access [at north spit]
  - ✓ marina development [dredging and substantial traffic]
  - ✓ adjacent residential development [barrier cottages and bayshore development]
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ✓ habitat diversity low [dominated by open water]
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

✓ management plans

land protection
- fee title
- ✓ conservation easement
- ✓ management agreements
- other

habitat management
- artificial nest structures
- beaver management
- DNC enhancement
- exotic species control
- water level controls
- ✓ rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- ✓ limit active mangement
- research prior to action

public use control
- ✓ interpretive signage
- trail or boardwalk
- ✓ limit human use / access

water quality improvement
- ✓ watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: The site has major habitat value as a waterfowl and shorebird migratory staging area and probable use as a shorebird roosting area as well as a production area for wood duck and mallard. Inshore and offshore migration of waterfowl based on weather. The northwest portion of Pond remains relatively sheltered and less developed. Interpretive signage is recommended at marinas and access points. Sandy Creek, Blind Creek, Mud, and Lindsey Creek are all recommended for the establishment of riparian corridors and fencing programs to improve water quality and restore native fisheries. A management plan is needed to address use management, watershed planning, protection of adjacent buffers, rare species management, and placement and scale of future developments.

Resource Inventory

Site name (topo): Cranberry Pond (Ellisburg)

County: Jefferson **Town:** Ellisburg

Characteristics

cover types: open 30 % emergent 10 % shrub 30 % forest % mixed 30 %
general description: 155a

Importance

wetland classification: type 1 (EL-10)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
✓ impoundments or alteration of flushing rates [barrier beach relatively stable]
___ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
___ agricultural: fertilizer, pesticides, pasturage
___ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)
___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
___ loss of buffer areas and riparian vegetation

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
✓ adjacent residential development [barrier cottages, little if any impact]
___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance
___ impaired nesting habitat

Strategies

management plans

land protection
✓ fee title
✓ conservation easement
management agreements
other

habitat management
artificial nest structures
✓ beaver management
DNC enhancement
exotic species control
✓ water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
✓ limit active mangement
✓ research prior to action

public use control
interpretive signage
trail or boardwalk
✓ limit human use / access

water quality improvement
watershed planning
riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: The site has major habitat value as a waterfowl staging area; little is known about the area and there may be an acidic fen community present. Beaver have been noted in a previous study when over 35 acres of flooded forest were present (Geis and Kee, 1977). Inaccessible location has kept the site intact with little degradation. Protection of site and adjacent buffer through acquisition or easements is recommended. Active management and human use should remain limited.

Resource Inventory

Site name (topo): Lakeview Marshes (Ellisburg/Henderson)

County: Jefferson **Town:** Ellisburg

Characteristics
cover types: open 25 % emergent 45 % shrub 10 % forest 10 % mixed 10 %
general description: 2805a

Importance
wetland classification: type 1 (EL-1); type 3 (H-13)
vulnerable spp.: black tern (SC); sand beach;
Great Lakes dunes; sand dune willow
heritage rank and EO: G4 S2 C; G5 S5 AB; G3G4 S1S2 B; G5 S1 A
Recommended for Designation as a Significant Coastal Habitat

Comments: One of most significant overwintering areas for black duck on New York's entire Great Lakes shore, found on spring fed ponds east of main ponds associated with marsh complex. 738 average for '89 through '91.

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [connected to lake, prevailing winds effect water level]
conversion of wetland: dredging, fill, construction
✓ conversion due to community succession or sedimentation [from tributaries]

Degradation
impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
municipal point sources & CSO's
industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [along tributaries and to east of inlet]
road runoff and storm sewers
heavy metals (shot, sinkers, other sources)

✓ wetland alteration; channelization; hydrological changes [side-cast ditching and diking effort in past]
✓ exotic species invasion [starting loosestrife]
conditions favor disease outbreaks (eg., botulism)
loss of buffer areas and riparian vegetation

Functional loss
recreational use of area excludes nesting or feeding
overuse
inappropriate access
marina development
✓ adjacent residential development [generally limited to proposals]

introduction of predators with residential development
other uses impair or disturb habitat

Lack of habitat element
habitat diversity low [many potholes, channels, aquatic vegetion]
✓ cattail monocultures [high diversity area, yet broad cattail areas exist in the northern section]
scrub-shrub dominance

impaired nesting habitat

Strategies

✓ management plans

land protection
fee title
✓ conservation easement
management agreements
✓ other

habitat management
✓ artificial nest structures
✓ beaver management
DNC enhancement
✓ exotic species control
water level controls
✓ rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
✓ research prior to action

public use control
✓ interpretive signage
✓ trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: This DEC administered Wildlife Management Area and State Park site is the best area in the Lake Ontario complex with habitat values as a rich waterfowl nesting, feeding, overwintering and migration area. Roosting shorebird use is not documented but is probably very significant. Sandy and South Sandy Creeks need stream corridor management for nutrients and sediments through a fencing program. A review the hydrology at the site is recommended. Interpretive signage and trail development in association with Southwick's State Park is recommended. A management plan is needed for proper use, adjacent area protection protection of the dune system. Effort should be directed at the controllable loosestrife just beginning to take hold at the site. Enhancement of tern habitat should be explored. Beaver provide important water level control in the northern pond area. Highest priority for a resource-based management plan.

Resource Inventory

Site name (topo): Black Pond Marshes (Ellisburg)

County: Jefferson Town: Ellisburg

Characteristics

cover types: open 5 % emergent 20 % shrub 5 % forest 20 % mixed 50 %
general description: 720a

Importance

wetland classification: type 1 (H-10,11); type 3 (H-14)
vulnerable spp.: black tern (SC); Great Lakes dunes; calcareous shoreline; nocturnid moth; sand dune willow; sand cherry; small skullcap
heritage rank/EO: G4 S2 D; G3G4 S1S2 B; G3G4 S3 B; G? S2S3 AB; G5 S1 AB; G5 T5 S2 AB; G4S1 A
Recommended for Designation as a Significant Coastal Habitat

Comments:

Habitat Value Impediment Checklist

Physical loss
- ✓ fluctuation in water levels [based on inlet/barrier beach]
- ___ conversion of wetland: dredging, fill, construction
- ✓ conversion due to community succession or sedimentation [succession seems too rapid]

Degradation
- ___ impoundments or alteration of flushing rates
- ___ point and non-point pollution and nutrient loads
  - ___ municipal point sources & CSO's
  - ___ industrial or private point sources
  - ✓ agricultural: fertilizer, pesticides, pasturage [Little Stony Creek]
  - ___ road runoff and storm sewers
  - ___ heavy metals (shot, sinkers, other sources)
- ___ wetland alteration; channelization; hydrological changes
- ✓ exotic species invasion [starting loosestrife problem]
- ___ conditions favor disease outbreaks (eg., botulism)
- ___ loss of buffer areas and riparian vegetation

Functional loss
- ___ recreational use of area excludes nesting or feeding
  - ___ overuse
  - ✓ inappropriate access [to pond and on beach (4wd), but relatively free of disturbance]
  - ___ marina development
  - ___ adjacent residential development
- ___ introduction of predators with residential development
- ___ other uses impair or disturb habitat

Lack of habitat element
- ___ habitat diversity low
  - ___ cattail monocultures
  - ___ scrub-shrub dominance
- ___ impaired nesting habitat

Strategies

- ✓ management plans

land protection
- fee title
- ✓ conservation easement
- management agreements
- other

habitat management
- artificial nest structures
- ✓ beaver management
- DNC enhancement
- ✓ exotic species control
- water level controls
- ✓ rare species management
- increase diversity
- shallow pond construction
- restoration / reclaimation
- limit active mangement
- ✓ research prior to action

public use control
- interpretive signage
- trail or boardwalk
- ✓ limit human use / access

water quality improvement
- watershed planning
- ✓ riparian corridor buffers
- ✓ adjacent buffer areas
- shallow pond construction
- point source reduction

Assessment: The site has ownership by both The Nature Conservancy and DEC with major habitat values as a staging area for waterfowl and shorebirds with probable waterfowl production. The El Dorado beach limestone rock shore is best known and possibly most important shorebird migratory stopover location in study area. The area also supports an assemblage of rare species and natural communities. Riparian corridor enhancement of Little Stony Creek through plantings and fencing is recommended. Human use should be limited at the site, particularly the dune system. A management plan is needed to address appropriate access and other human use concerns especially sensitive to the rare species and their habitat requirements. Easements are recommended for the protection of adjacent buffer areas. Loosestrife should be controlled. Beaver may be important for water level control in southern wetlands behind cottage developments.

Resource Inventory

Site name (topo): Stony Creek Marsh (Henderson)

County: Jefferson **Town:** Henderson

Characteristics

cover types: open 15 % emergent 65 % shrub % forest % mixed 20 %
general description: 90a

Importance

wetland classification: type 2 (H-7)
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
___ fluctuation in water levels
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage [immediately adjacent]
✓ road runoff and storm sewers [to south]
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation [replaced by lawns]

Functional loss
✓ recreational use of area excludes nesting or feeding
✓ overuse [near boat launch area]
___ inappropriate access
✓ marina development [expansions and new]
✓ adjacent residential development [to south, cottages along roadways]

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
✓ conservation easement
✓ management agreements
✓ other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
✓ restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
✓ watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: The site is lacking for known habitat value other than concentrations of waterfowl occur in bay area off creek mouth. The lake shore shallows here are important to migrant divers. The site is in need of riparian enhancement through plantings and protection of adjacent areas through easements or management agreements that would allow the restoration of wetland adjacent areas from lawns to vegetative buffer. A watershed plan is needed to improve water quality and lack of buffers.

Resource Inventory

Site name (topo): Ray Bay Marsh (Stony Point)

County: Jefferson **Town:** Henderson

Characteristics
cover types: open 30 % emergent 35 % shrub 10 % forest % mixed 25 %
general description: 90a

Importance
wetland classification: unknown
vulnerable spp. (name and status)
heritage rank and EO: G S EO ;

Comments:

Habitat Value Impediment Checklist

Physical loss
✓ fluctuation in water levels [w/lake levels]
___ conversion of wetland: dredging, fill, construction
___ conversion due to community succession or sedimentation

Degradation
___ impoundments or alteration of flushing rates
✓ point and non-point pollution and nutrient loads
___ municipal point sources & CSO's
___ industrial or private point sources
✓ agricultural: fertilizer, pesticides, pasturage
✓ road runoff and storm sewers
___ heavy metals (shot, sinkers, other sources)

___ wetland alteration; channelization; hydrological changes
___ exotic species invasion
___ conditions favor disease outbreaks (eg., botulism)
✓ loss of buffer areas and riparian vegetation

Functional loss
___ recreational use of area excludes nesting or feeding
___ overuse
___ inappropriate access
___ marina development
___ adjacent residential development

___ introduction of predators with residential development
___ other uses impair or disturb habitat

Lack of habitat element
___ habitat diversity low
___ cattail monocultures
___ scrub-shrub dominance

___ impaired nesting habitat

Strategies

management plans

land protection
fee title
✓ conservation easement
✓ management agreements
other

habitat management
artificial nest structures
beaver management
DNC enhancement
exotic species control
water level controls
rare species management
increase diversity
shallow pond construction
restoration / reclaimation
limit active mangement
research prior to action

public use control
interpretive signage
trail or boardwalk
limit human use / access

water quality improvement
watershed planning
✓ riparian corridor buffers
✓ adjacent buffer areas
shallow pond construction
point source reduction

Assessment: Concentrations of waterfowl occur in bay area. Protection of adjacent areas and riparian corridor through easement or management agreement.

RESULTS AND ANALYSIS

Overview of Focus Area Site Characteristics

The Focus Area supports limited production of waterfowl. The sites supporting the most significant waterfowl production have been found to be secluded wetlands with a relatively high percentage of shrub and forest covertype and wetlands that are protected from lake level influences by a stable barrier beach. Wetlands open to lake level influences are dominated by emergent vegetation, such as cattail, and contain little or no shrub component.

Differences in cover type composition of the lake shore marshes are evident among the three reaches (Table 2). Each reach offers a significant amount of open water; however, each reach has one large open water area which skews the percentages of cover types towards open water. The dominant open water sites in each reach are: Irondequoit Bay in the western reach, Sodus Bay in the central reach, and North Pond in the eastern reach. The net effect of the dominance of these open water areas on a comparison of reaches is small since each reach contains one major open water area.

A more interesting aspect of the cover type analysis appears on inspection of the specific cover type data. The concentration of wetland acreage in the Braddock's Bay area is evident in the western reach (Table 3). The dominance of emergent vegetation in this area illustrates the influence of lake level on wetland composition. In the central reach, the concentration of wetland acreage from Root Swamp through Black Creek Wetlands provides the dominant feature. The Sterling Creek area is removed from this concentration of wetlands, yet shares a common attribute: most sites in this reach provide highly diverse cover types, usually with forested or shrubby components (Table 4). The barrier beach wetland complex dominates the eastern reach with the Butterfly Creek wetland site providing significant outlying values. The sites in the eastern reach also provide fairly diverse cover types, although significant stands of cattails can dominate in certain areas (Table 5). Again, the role of lake level influences appears to dominate the cover type composition of each site and may be related to the quality and type of habitat use.

Low numbers of American black ducks have been confirmed nesting in wetlands such as Cranberry Pond (Andrle and Carroll, 1987), Lakeview Marshes (Andrle and Carroll, 1987), Deer Creek Marsh (Herdendorf, et al., 1976), Teal Marsh (Herdendorf, et al., 1976), Snake Swamp (Herdendorf, et al., 1976), Grindstone Creek Marsh (Herdendorf, et al., 1976), Butterfly Creek Wetlands (Herdendorf, et al., 1976), Ramona Beach Wetlands (Herdendorf, et al., 1976), and Braddock Bay complex (Andrle and Carroll, 1987). Other areas that may support breeding black ducks include Beaver Creek and Marshes, Black Pond, and Otter Branch Wetlands.

More recently, the annual statewide breeding waterfowl survey failed to locate any breeding black ducks in the Focus Area (Swift, 1991). The breeding survey is a statistical survey limited to selected census blocks and does not provide a comprehensive account of uncommon species. Nevertheless, black ducks must be considered a rare breeder in the Focus Area. The black duck is a difficult species to inventory, especially during breeding season because of their need for seclusion. Inventory efforts are further complicated by early nesting habits of

Table 2. Total acres and cover type percentages by reach. [OP=open water, EM=emergent, SH=shrub, FO=forested, MX=mixed]

REACH	ACRES	OP	EM	SH	FO	MX
WESTERN	5570	52%	30%	3%	8%	7%
CENTRAL	7743	45%	19%	7%	15%	14%
EASTERN	9620	36%	30%	11%	10%	14%

Table 3. Total acreage and cover type acreage for the Western Reach. [OP=open water, EM=emergent, SH=shrub, FO=forested, MX=mixed]

Inventory Unit Name	SIZE	OP	EM	SH	FO	MX
Yanty Creek Marsh	100	35	40	0	25	0
Sandy Creek Harbor Marsh	75	19	23	23	7	3
Benedict Beach Marsh	50	0	18	0	25	7
Cowsucker Creek Marsh	75	0	31	0	7	37
Brush Creek Wetlands	180	63	81	9	18	9
Lighthouse Beach Wetlands	115	0	0	23	46	46
Payne Beach Wetlands	140	0	7	0	42	91
Braddock Bay Wetlands	850	340	340	42	128	0
Cranberry Pond and Wetlands	400	140	180	0	20	60
Long Pond Wetlands	530	398	106	0	26	0
Buck Pond Wetlands	715	215	358	71	0	71
Round Pond Wetlands	285	29	214	13	29	0
Slater Creek Wetlands	25	5	16	0	0	4
Genesee River	150	127	11	0	12	0
Durand-Eastman Park Wetlands	30	27	3	0	0	0
Irondequoit Creek Wetlands	265	53	159	0	26	25
Irondequoit Bay	1500	1425	75	0	0	0
Salmon Creek	10	10	0	0	0	0
Maxwell Bay	75	15	15	0	34	11

Table 4. Total acreage and cover type acreage for the Central Reach. [OP=open water, EM=emergent, SH=shrub, FO=forested, MX=mixed]

Inventory Unit Name	SIZE	OP	EM	SH	FO	MX
First Creek Marsh	40	8	16	0	0	16
Sodus Bay	1975	1975	0	0	0	0
Second Creek Marsh	80	40	16	4	12	8
Sawmill Cove Marsh	60	6	24	0	15	15
Sodus Creek Marsh	250	62	100	12	25	50
Hog Island Marsh	62	0	43	19	0	0
Root Swamp	125	0	0	13	96	13
East Bay Marshes	555	111	167	0	56	222
Brush Marsh	95	0	0	59	18	18
Beaver Creek and Marshes	419	21	21	126	230	21
Port Bay & Wolcott Creek	495	248	198	25	25	0
Marsh east of Port Bay	142	14	14	14	53	57
Red Creek Marsh	460	92	207	23	115	23
Black Creek Wetlands	454	23	69	23	46	295
Blind Sodus Bay	270	230	14	0	14	12
Little Sodus Bay	465	446	10	9	0	0
Sterling Creek Wetlands	950	95	570	47	95	142
Juniper Pond Swamp	30	15	4	2	9	0
Jenzvolt Road Swamp	18	2	0	0	0	16
Wheeler Road Swamp	115	0	0	0	115	0
Dogwood Road Swamp	65	0	0	0	62	3
Ninemile Creek Swamp	55	6	16	0	0	33
Eightmile Creek	12	12	0	0	0	0
West Lake Road Swamp	45	0	0	9	18	18
Snake Swamp	148	15	0	44	44	45
Rice Creek Swamp	28	7	0	21	0	0
Oswego River	55	55	0	0	0	0
Teal Marsh	275	14	0	69	82	110

Table 5. Total acreage and cover type acreage for the Eastern Reach.
[OP=open water, EM=emergent, SH=shrub, FO=forested, MX=mixed]

Inventory Unit Name	SIZE	OP	EM	SH	FO	MX
Otter Branch Wetlands	45	4	0	0	33	8
Catfish Marsh	15	3	0	0	0	12
Butterfly Creek Wetlands	400	20	40	140	140	60
Mexico Point Marshes	55	2	3	25	25	0
Little Salmon River Marshes	60	21	44	0	0	0
Sage Creek Marsh	35	3	29	3	0	0
East Sage Creek	50	5	0	42	3	0
Ramona Beach Marsh	100	5	50	35	10	0
Grindstone Creek and Marshes	125	37	75	13	0	0
Salmon River	410	164	164	20	41	21
Deer Creek Marshes	1040	52	624	312	52	312
South Pond Rainbow Shores	485	291	73	0	0	121
North Pond and Tributaries	2940	2058	294	147	294	147
Cranberry Pond	155	46	16	46	0	46
Lakeview Marshes	2805	701	1262	280	280	280
Black Pond Marshes	720	36	144	36	144	360
Stony Creek Marsh	90	13	59	0	0	18
Ray Bay Marsh	90	27	31	0	0	23

black ducks (while snow is still on the ground), and the fact that only two or three pairs are usually found in an area despite its size (Spencer, 1986). These birds are not tolerant of human disturbance and this may also contribute to the difficulty of inventory. If a true estimate of black duck nesting is needed in the Focus Area, then a specific survey for black duck in likely habitats would be needed. Since the numbers of black ducks found in such a survey is likely to be low, the effort involved may not be warranted.

The most abundant breeding duck in the Focus Area is the mallard, which is a confirmed breeder at most of the sites within the Area. Following mallard, wood duck is the next most abundant breeding waterfowl species in the area. There are also lesser numbers of blue-winged teal and Canada geese that are confirmed breeders at several sites within the focus area. The highest documented waterfowl production is found at Deer Creek Marsh, Butterfly Creek Wetlands, Braddock Bay complex and Lakeview Marshes.

Overwintering by waterfowl of the Focus Area is difficult to quantify as use depends on the extent of ice cover on the ponds and bays. There is, however, consistent use of two nearshore areas identified within the Focus Area by predominately scaup and mergansers. A significant number of black ducks overwinter on a small spring-fed pond east of the inlet and west of Route 3 at the Lakeview Marshes complex (720 average from 1989-1991); this represents the most important black duck use in the entire Focus Area. In addition to waterfowl overwintering use, owls such as snowy, short-eared, and saw-whet use the limited pine groves present in the Focus Area.

Migratory staging is clearly the predominant value across the entire Focus Area with virtually all the sites receiving some use. The 65 Focus Area sites contain approximately 23,000 acres of migratory staging habitat (not including the nearshore area of Lake Ontario) for waterfowl as well as passerines, with open water receiving extensive use by waterfowl and woodlands receiving high use by passerines, in general. Raptors use much of the Focus Area during their migrations with concentration areas at Braddock's Bay and Derby Hill (between 50,000 and 60,000 observed each year at both areas). Shorebirds also use mudflat habitats present at places like Long Pond Wetlands, Grindstone Creek Wetlands and Black Pond during migration. Use of wetlands by shorebirds for roosting is suspected to be important and should be evaluated.

The Focus Area supports important ecological values, such as rare and exemplary natural communities including 17 miles of dunes in the eastern reach, inland poor fen communities that host assemblages of rare plant and animal species, and rich shrub fen communities that may provide habitat for nesting blue-winged teal. The Focus Area also supports many species of mammals, reptiles, and amphibians; however, sufficient data on these species are currently unavailable.

Several sites within the Focus Area exhibit high ecological integrity. These sites are typically undisturbed, well buffered, highly diverse areas with little functional impediment. The most pristine sites include Black Creek Wetlands, Beaver Creek and Wetlands, Juniper Pond Swamp, Otter Branch Wetlands, Marsh East of Port Bay, Cranberry Pond, Lakeview Marshes, Wheeler Road Swamp, and Jenzvolt Road Swamp. Other sites that have significant integrity include Teal Marsh, Sage Creek Marsh, Ramona Beach Marsh, Deer Creek Marsh, Butterfly Creek Wetlands, and

Red Creek Wetlands. These areas demonstrate enough ecological value to warrant expenditures of public funds for land protection by acquisition or other means.

The Focus Area supports several state listed vulnerable species including: northern harrier (T) at Buck Pond, Deer Creek, and Lakeview; common tern (T) at North Pond; Black Tern (SC) at Yanty Creek Marsh, Braddock's Bay, Buck Pond, Round Pond, Lakeview, and North Pond; least bittern (SC) at the Braddock's complex and Deer Creek Marsh; and sedge wren (SC), grasshopper sparrow (SC), Henslow's sparrow (SC) and short-eared owl (SC) at Braddock's Bay, and lake sturgeon (T) in the Oswego River. Historical fish survey information has documented pugnose shiner (E), blackchin shiner (SC), lake chubsucker (T), and other rare fishes in various aquatic habitats throughout the focus area. Little current information exists on the occurrence of these rare fishes. Slow waters in streams of medium to large size with a silt or mud bottom and dense aquatic vegetation should be surveyed for the presence of such species as mimic, bridle, pugnose (E), and blacknose shiners, as well as the eastern silvery and brassy minnows. Swampy wetlands in the western reach should be surveyed for lake chubsucker (T). Streams of medium to large size, in the eastern reach, with sandy bottoms should be surveyed for blackchin (SC) and sand shiners. Cryan's buckmoth, a species known from fewer than six places worldwide, occurs at the inland poor fens at Deer Creek Marsh and the south end of South Pond wetlands.

Specific Habitat Use By Type

Migratory bird uses in the Focus Area may be placed in three categories: wintering, migratory staging, and nesting. Wintering habitat is used by a variety of waterfowl and duck-like birds, most notably the diving and sea ducks. Examples of species that can be observed include common and red-throated loon, horned grebe, Canada goose, brant, scoters, harlequin duck, scaup, ruddy duck, oldsquaw, bufflehead, common goldeneye, mergansers, and king eider. Overwintering gulls such as glaucous and Icelandic gulls can also be observed. Weather conditions limit the availability of overwintering habitat, depending largely on the extent of ice cover in the bays and nearshore areas. Substantial overwintering habitat is generally available in these areas into December and occasionally through winter in mild years. The bay areas and major rivers offer refuge during inclement conditions until freeze-up occurs.

Migratory staging is the most important use in the entire Focus Area. Waterfowl concentrate in many of the wetland and bay areas during their passage to nesting grounds to the north or to overwintering areas to the south. Staging by canvasback, redhead, wood duck, green-winged teal, ring-necked duck and other species was noted in many of the lakeshore wetland areas. In addition to waterfowl, significant numbers of shorebirds, raptors, and passerine species make use of the lakeshore wetlands and associated woodlands. Lake Ontario acts as a barrier to migration for many bird species, concentrating migrations through lakeshore corridors for raptors and some passerines, or concentrating passerines and shorebirds along the lakeshore until conditions are favorable for crossing the lake. Factors necessary for high quality staging areas include an undisturbed, sheltered environment that offers a resting area, an adequate supply of forage items such as insects for warblers and aquatic vegetation or grains for many ducks, and other habitat elements such as perching sites near the lake to serve as jump-off or safe-landing points for passerines flying over the lake.

Nesting is also an important habitat use in the Focus Area, but the importance of nesting varies both by reach and by specific location. Waterfowl species either reported as confirmed or probable nesters in the focus area include Canada goose, wood duck, green-winged teal, American black duck, mallard, blue-winged teal, northern shoveler, and gadwall (Andrle and Carroll, 1988). The most important nesting habitats within the Focus Area are relatively undisturbed, large wetland complexes with relatively constant water levels, shrub or forested components within the wetland, and intact adjacent buffer areas. The absence of any one of these factors appears to reduce the waterfowl nesting value of a particular site. Many other bird species use the lakeshore wetland areas as nesting sites including several vulnerable species such as common tern (T), black tern (SC), American bittern, least bittern (SC), osprey (T), northern harrier (T), and several heron species. Significant amounts of passerine bird nesting habitat are provided throughout the Focus Area. Finally, fish spawning is also substantial in both the nearshore water for limnetic species such as alewife and in the wetlands and tributaries for many lake and wetland resident species including several shiner species, perch, black bass, northern pike, walleye, and to a lesser degree, salmonids.

Specific Habitat Use By Reach

The western reach including Monroe County and the western portion of Wayne County (see reach descriptions) is predominantly used by waterfowl as a migratory staging area (Table 6). Significant numbers of waterfowl concentrate in the bay complexes, tributary mouths, and nearshore areas in both fall and spring, either heading for southern overwintering areas or northern nesting grounds, respectively. Adjacent upland areas provide resting and feeding grounds, and substantial concentrations of waterfowl use wetlands and fields that are located inland of the shoreline.

In addition to waterfowl, passerine birds and raptors migrate through the lakeshore wetlands and associated woodlands in large numbers in springtime, either following migration corridors to the east around Lake Ontario (for raptors), or gaining reserves necessary for the flight across the Lake (for many passerines). These areas are also important in fall migrations for passerines and shorebirds, each finding first landfall from the flight across Lake Ontario and quickly feeding in woodlands or mudflats, respectively. The lakeshore wetlands are particularly important for migration of passerines in this reach since woodlands and shrubby cover is often restricted to stream corridor banks and wetland edges in most of this reach. The lack of forest cover throughout most of this reach tends to increase the value of the lakeshore wetland areas for migratory staging, creating small pockets or islands of favorable habitat with narrow vegetated corridors leading inland through deforested lake plains. The importance of the lack of forest cover in this reach is illustrated by a birding guide noting individual trees along the shore as important stopping points for migrating birds and small stands of conifers as concentration areas for particular species.

Overwintering is a secondary use in this reach and depends on the extent of ice cover. The bays and wetlands provide sheltered refuge for waterfowl in fall and early winter until freeze-up forces use of the open lake and the Genesee River mouth which remains open later in the season. Much of the nearshore area in

Table 6. Major habitat value(s) for waterfowl in the Western Reach of the Lakeshore Marshes Focus Area.

SITENAME	WINTERING AREA	MIGRATORY STAGING AREA	LIMITED NESTING	SIGNIFICANT NESTING
Yanty Creek Marsh		X	X	
Sandy Creek Harbor Marsh		X		
Benedict Beach Marsh		X		
Cowsucker Creek Marsh		X	X	
Brush Creek Wetlands		X	X	
Lighthouse Beach Wetlands		X		
Payne Beach Wetlands		X	X	
Braddock Bay Wetlands		X	X	
Cranberry Pond Wetlands		X	X	
Long Pond Wetlands		X	X	
Buck Pond Wetlands		X	X	
Round Pond Wetlands		X	X	
Slater Creek Wetlands				
Genesee River	X			
Durand-Eastman Park Wetlands		X		
Irondequoit Creek Wetlands		X	X	
Irondequoit Bay	X	X	X	

Average Nearshore Numbers of Wintering Waterfowl
Western Reach - 1986 through 1991

- Yanty Creek to Braddock Bay — Mean 356 (Maximum 1071)
- Irondequoit to Maxwell Bay — Mean 1400 (Maximum 2405)

Wayne County from Smoky Point and through Holland Cove is noted for use by sea ducks in winter (NYS DEC in Wayne County Planning Board, 1977). This area exhibits steeper-sloped and deeper nearshore bottom contours, which may provide suitable feeding habitat for diving waterfowl (Ray, et al., 1980). Owls and gulls are also significant overwintering species that can be found within this reach of the Focus Area.

Nesting habitat in the western reach is generally of marginal value, primarily due to the level of disturbance from development and human use, the loss of buffer areas, and the lack of suitable nesting elements. The one species that demonstrates success in nesting throughout this reach is the mallard, and opportunities exist for enhancing nesting for this species. The Braddock's Bay complex supports nesting by many vulnerable species including black tern (SC), sedge wren (SC), grasshopper sparrow (SC), and Henslow's sparrow (SC), and northern harrier (T). In addition, wooded areas, shrubby edge vegetation and wetlands provide important nesting habitat for many passerine species. Promoting buffer areas would directly enhance the nesting habitat values for these species as a secondary benefit to improving the lakeshore wetland complexes in this reach.

The central reach is also predominantly used by waterfowl as a migratory staging area (Table 7). Significant numbers of waterfowl use lakeshore wetlands, bays, nearshore areas, and tributary mouths in both fall and spring. Adjacent upland areas in this reach are often relatively well buffered by forested lands, including more intact tributary drainages, both of which provide areas for waterfowl resting and feeding. The bays and wetlands also provide refuge for waterfowl during periods of inclement weather which can make the lake environment inhospitable.

In addition to waterfowl, passerines and raptors migrate through the lakeshore wetlands and associated woodlands. Springtime concentrations follow migration corridors eastward around Lake Ontario for raptors and many passerines. Other passerines concentrate along the lakeshore in springtime to feed and gain sufficient energy reserves for the flight across the lake. This reach is also important to shorebirds in fall migration as they use the rich feeding areas of the mudflats that occur at several wetland areas. The forested lands in this reach are very important because here woodlands often are linked, forming sheltered corridors and providing cover from predators. It is not unusual to find thirty or more scarlet tanagers in a single tree during spring migration in the woodland fringes associated with the wetlands in this reach.

There is significant waterfowl nesting habitat in the central reach and this seems to be strongly correlated with the occurrence of diverse, well buffered

Table 7. Major habitat value(s) for waterfowl in the Central Reach of the Lakeshore Marshes Focus Area.

SITENAME	WINTERING AREA	MIGRATORY STAGING AREA	LIMITED NESTING	SIGNIFICANT NESTING
First Creek Marsh		X		
Sodus Bay	X	X		
Second Creek Marsh		X		
Sawmill Cove Marsh		X	X	
Sodus Creek Marsh		X	X	
Hog Island Marsh		X		
Root Swamp		X	X	
East Bay Marsh		X		X
Brush Marsh		X		X
Beaver Creek & Marshes		X		X
Port Bay/ Wolcott Creek Marshes		X	X	
Marsh East of Port Bay		X	X	
Red Creek Marsh		X		X
Black Creek Wetlands		X		X
Blind Sodus Bay		X		
Little Sodus Bay		X		
Sterling Creek Wetlands		X		X
Juniper Pond Swamp		X		
Jenzvolt Road Swamp		X		X
Wheeler Road Swamp		X		X

Dogwood Road Swamp		X		
Ninemile Creek Swamp		X		
Eightmile Creek	X	X		
West Lake Road Swamp		X		
Snake Swamp		X		X
Rice Creek Swamp		X	X	
Oswego River	X			
Teal Marsh		X	X	

Average Nearshore Numbers of Wintering Waterfowl
Central Reach - 1986 through 1991

• Sodus Bay to East Bay	Mean 97 (Maximum 275)
• East Bay to Blind Sodus Bay	Mean 106 (Maximum 224)
• Blind Sodus Bay to Oswego River	Mean 404 (Maximum 1230)
• Oswego River to Teal Marsh	Mean 745 (Maximum 1088)

wetlands that in most cases are fronted by stable barrier beaches which moderate fluctuating water levels. These productive wetland areas often exhibit a mix of cover types with an interspersion of shrubs, emergents, and open water. Waterfowl that breed in significant numbers here include, blue-winged teal, mallard, and wood duck. Appropriate American black duck nesting habitat appears to be available in this reach, however nesting by this species is considered to be rare. In addition to waterfowl, many other bird species nest in this reach, including the vulnerable black tern, least bittern, rails, herons, and an assortment of passerines and raptors.

Waterfowl overwintering in the central reach occurs in the bays and wetlands during the fall and early winter until freeze-up forces the use of nearshore waters and the Oswego River mouth and harbor. The Oswego River mouth and harbor area supports the highest numbers of overwintering waterfowl in the entire focus area. This is due, in part, to the influence of the Oswego River and the warming effect of power plant discharges which further leads to concentrations of forage fish in the area. According to DEC mid-winter aerial surveys, the nearshore stretch around the Oswego River provides wintering habitat for such species as scaup, mergansers, common goldeneye, with lesser numbers of bufflehead, mallard, American black duck, oldsquaw, and canvasback. The Oswego harbor area often offers the last available open water, providing by far the most important overwintering habitat in the focus area, especially during harsh winters. Many resident passerines as well as gulls and raptors make use of wintering habitat found in this reach.

The eastern reach, approximately from Mexico Point in Oswego County to Stony Point in Jefferson County, also provides migratory staging as its most important habitat value (Table 8). Waterfowl, passerines, and raptors all follow the largely undisturbed migratory corridor along the eastern end of Lake Ontario, stopping in many of the large wetland areas, expansive open water behind protective barrier beaches, and woodland areas associated with the shore. Waterfowl can be found in significant concentrations from late fall through early winter and again immediately after ice-out in spring. Significant staging has been noted in several areas, such as the 200 to 300 wood ducks that typically can be observed during migration at Sage Creek. Raptor concentrations are notable in spring with average numbers of nearly 50,000 migrants observed at Derby Hill in a season. Passerine birds, particularly warblers, can be found in large numbers throughout the lakeshore wetlands and woodlands throughout this reach. Shorebird migration in fall is also concentrated in this reach, especially at the exposed rocky flats at El Dorado Beach.

Table 8. Major habitat value(s) for waterfowl in the Eastern Reach of the Lakeshore Marshes Focus Area.

SITENAME	WINTERING AREA	MIGRATORY STAGING AREA	LIMITED NESTING	SIGNIFICANT NESTING
Otter Branch Wetlands			X	
Catfish Marsh				
Butterfly Creek Wetlands		X		X
Mexico Point Marshes		X	X	
Little Salmon River Marshes		X		
Sage Creek Marsh		X	X	
East Sage Creek Wetlands		X	X	
Ramona Beach Wetlands		X		
Grindstone Creek & Marshes		X	X	
Salmon River	X			
Deer Creek Marshes		X	X	
South Pond Rainbow Shores		X	X	
North Pond & Tributaries		X		X
Cranberry Pond		X		
Lakeview Marshes	X	X		X
Black Pond Marshes		X	X	
Stony Creek Marsh		X		
Ray Bay Marsh		X		

Average Nearshore Numbers of Wintering Waterfowl
Eastern Reach - 1986 through 1991

• Teal Marsh to Salmon River	Mean 745 (Maximum 1088)
• Salmon River to Black Pond	No observed nearshore use

Nesting values are also high for waterfowl in this reach with significant nesting associated with the largest wetland complexes such as Lakeview Wildlife Management Area. The amount of black duck nesting habitat in this reach is probably lower than in the central reach based upon cover types that comprise these wetland areas. One factor that may enhance the waterfowl nesting values in this reach is the availability of broader areas with dense nesting cover in the largely preserved adjacent uplands, which offer flat topography in comparison to the central reach. Nesting is also significant in this reach for passerines and vulnerable species. The acidic fen communities found within this reach have very limited value as waterfowl nesting habitat, but are particularly valuable as rare communities supporting globally-endangered species. Several of the larger open water areas are also significant fish spawning habitats for lake and wetland resident species, providing a substantial forage base for herons and piscivorous waterfowl. In addition, this reach includes cold water tributaries that provide significant spawning runs of salmonids, which may be restored to enhance productivity.

Overwintering in the eastern reach of the focus area is important until it is excluded by ice conditions. Bays and wetlands often provide shelter into December. Spring-fed ponds within the large wetland complex at Lakeview are noted as overwintering habitat for black ducks and mallards, with an average of 1245 waterfowl in the area in mid-winter (1989-1991 average). In addition to the lakeshore wetlands, the nearshore area between Mexico Point and the mouth of the Salmon River are noted for overwintering waterfowl. Significant numbers of scaup, common goldeneye and mergansers can be found here in mid-winter, dependent on ice conditions in the lake. There does not appear to be any significant overwintering use of the nearshore area fronting the Ontario dune complex north of the Salmon River, and based on known bottom conditions, extreme exposure, and ice formations, it is unlikely that this area offers suitable overwintering conditions.

IMPLEMENTATION

Throughout the Focus Area, there are many opportunities to implement specific projects that would directly improve the habitat quality at specific sites for a variety of fish and wildlife species. The site evaluation forms in this report recommend specific strategies that appear to be appropriate for the individual area and the resources that it supports (Tables 9 & 10). These evaluations are not necessarily comprehensive or fixed; additional information or better site or species specific knowledge may indicate that different strategies may be more suitable than those recommended. The recommendations in this report are only provided to guide stewardship of the resources in the Focus Area, all in the context of a comparative ecological analysis of the individual sites identified

Table 9. Number of strategies identified for application in each of the three reaches and the entire focus area.

AREA	LAND PROTECTION	HABITAT MANAGEMENT	PUBLIC USE MANAGEMENT	WATER QUALITY MANAGEMENT
WESTERN REACH 19 SITES	11	15	8	18
CENTRAL REACH 28 SITES	20	27	10	27
EASTERN REACH 18 SITES	15	24	9	20
TOTAL 65 SITES	46	66	27	65

Table 10. Specific strategies identified within each reach.

STRATEGIES	WESTERN REACH	CENTRAL REACH	EASTERN REACH
management plans	11	6	8
fee title	0	2	3
conservation easement	7	17	13
management agreements	6	7	6
other	1	4	4
land protection [# sites]	11	20	15
artificial nest structures	3	4	3
beaver management	1	4	4
DNC enhancement	7	6	0
exotic species control	1	10	8
water level controls	0	4	3
rare species management	4	2	8
increase diversity	1	3	1
shallow pond construction	1	8	1
restoration / reclaimation	4	5	2
limit active mangement	1	5	7
research prior to action	0	7	6
habitat mgmt. [# sites]	15	27	24
interpretive signage	7	3	4
trail or boardwalk	3	4	3
limit human use / access	3	8	7
public use mgmt. [# sites]	8	10	9
watershed planning	4	8	8
riparian corridor buffers	7	21	15
adjacent buffer areas	15	23	16
shallow pond construction	0	12	1
point source reduction	2	6	5
water quality [# sites]	18	27	20

in this report. Further, the recommendations in this report must be augmented with field verification, feasibility assessments and responsible site planning in order to ensure that the resources will actually benefit from the implementation of any contemplated strategy.

Necessary points to consider in implementing any strategy would be:

1-state wetland classification;
2-presence of endangered, threatened, special concern, or rare species or natural communities;
3-site history, past uses including past functioning as a wetland;
4-surface topography including elevations of levees, drainage channels, ponds, islands, and slope;
5-existing water control structures, location of culverts and outlets;
6-hydrology including current flow, flow velocity, and flood events;
7-sediment budgets, inflow, outflow, and retention;
8-soil, description of existing soils with analysis of suitability for supporting wetland vegetation;
9-existing vegetation;
10-timing of restoration project;
11-potential impacts to site from adjacent human activities; and,
12-project costs and benefits analysis including subsidized funding sources.

Ecological Management Plans

A specific need exists for comprehensive management plans at the Braddock Bay complex, the Lake Shore complex in Wayne and Cayuga Counties which includes the Lake Shore WMA and Sterling Creek, Lakeview WMA and Southwicks Beach State Park, and Deer Creek WMA. Each of these areas are beset with a myriad of resource-threatening problems, possess a wealth of rare and productive natural resources, and include several jurisdictions that must coordinate and cooperate in order to sustain the values found at each area. A first step in the planning process is to conduct an ecological community based inventory of these areas. Inventories of these sites should receive priority consideration. Some of these areas (the Wildlife Management Areas) will be inventoried over the next 6 years under a Return a Gift to Wildlife contract with the New York Natural Heritage Program, covering WMA's statewide. Inventories of areas other than WMA's will have to be arranged, either with the NY Natural Heritage Program or others.

Land Protection

Two sites were identified that should receive priority consideration for direct acquisition: Juniper Pond Swamp and Butterfly Creek Wetlands. These sites are the only two occurrences of relict freshwater interdunal swale communities in New York State. Butterfly Creek may be one of the most productive waterfowl habitats in the focus area that remains under private ownership (USFWS, 1976).

In addition to these two areas, another group of sites have been identified as appropriate for either fee title acquisition or conservation easements. The most appropriate method of protection would have to be determined during the implementation phase for these sites. Examples of such sites include Cranberry Pond and South Pond Rainbow Shores (see site assessment forms).

A group of sites which warrant protection through conservation easements or similar mechanisms has been identified. Typically, these sites are adjacent woodland buffer areas, riparian corridors, or areas needing additional setbacks from the resource site. For some of these sites, existing ownership suggests that opportunities for effective conservation easements are available (such as for public utility lands).

Management agreements are needed for other sites where administrative responsibility for a single site lies with several public entities. Examples exist where town parks abut State Wildlife Management Areas, and where several state agencies have jurisdiction over a single site, most often including Office of Parks, Recreation, and Historic Preservation; Department of Environmental Conservation; Department of Transportation; and the Office of General Services. Management agreements can be implemented with conservation organizations such as The Nature Conservancy, Ducks Unlimited, and Audubon. In some cases private lands are identified which can also benefit from cooperative agreements with many of the referenced agencies and organizations.

Habitat Management and Restoration

Artificial nesting structures. Many sites may benefit from artificial nest structures to increase local waterfowl production and resident passerine bird nesting. Examples of areas which may be suitable for this strategy include Yanty Creek Marsh, Brush Creek Wetlands, and Sage Creek Wetlands. In addition to artificial nesting structures, coordination with revegetation efforts should be sought to increase suitable natural nesting sites.

Beaver management. Often water levels within a portion of a site vary due to the engineering of beavers. This can be problematic when carried to extremes, such as when culverts are blocked or when the entire area is flooded by as much as four additional feet of water (such as at Cranberry Pond). In these cases it is necessary to fool beaver into providing more stable water levels through the construction of water overflow devices as described in the strategies section. Several sites may be appropriate for this activity.

Another component of beaver management is to encourage higher rates of occupancy of suitable habitat sites. The current estimate of occupancy in the central reach is 11%, while the rate is 31% in the eastern reach (NYS DEC, 1990). If beaver occupancy in the central reach is increased, then additional forested wetland would be provided, although the acreage flooded has not been estimated within the Focus Area. Policies which would encourage beaver occupancy should be followed in the central reach, but only to the extent that significant flooding of agricultural or residential lands would not occur. This policy would likely incur additional costs associated with responding to nuisance complaints. Beaver currently within the undisturbed Focus Area sites should be maintained.

Dense Nesting Cover (DNC). Many areas that have been identified may provide productive waterfowl habitat but are limited due to lack of suitable dense nesting cover. Often these areas have experienced encroachment of upland development, resulting in an abrupt transition from unvegetated uplands to wetland or open water. Where lawns or agricultural fields have eliminated dense nesting cover, it is possible to establish a buffer by planting fields of stiff-

stemmed grasses or sedges. Extreme care should be taken to limit soil disturbance so that overland runoff does not create an unwanted source of nonpoint pollution.

Specific areas which appear to be suitable for DNC planting programs include Benedict Beach Marsh, Payne Beach Wetlands, Long Pond Wetlands, East Bay Marsh, Port Bay and Wolcott Creek Marsh, Red Creek Marsh, and Sawmill Cove Marsh.

Exotic species control. The greatest need for exotic species control in the focus area appears to be control of **purple loosestrife** within the wetlands. The first and most important implementation project is an inventory and monitoring program of the occurrence and rate of invasion of this species. The inventory may be feasible using aerial photography in combination with field checking. The second component of this program is a labor-intensive, volunteer loosestrife control effort which would directly remove loosestrife from the wetlands. Efforts should make use of the seasonal water level regime so that subsequent flooding of the invaded area would enhance control efforts. Such a program could be well received by the public, is well-suited to organizations such as the scouts, and is likely to result in tangible benefits. Alternative means through biological control should also be evaluated.

Sites which may be appropriate targets for loosestrife control include Sodus Bay tributaries, East Bay Marsh, Sterling Creek Wetlands, Rice Creek Wetlands, Butterfly Creek Wetlands, Sage Creek Wetlands, Ramona Beach Wetlands, Grindstone Creek Wetlands, Lakeview Marshes, and Black Pond. **Water chestnut** control should focus on Sodus Bay.

Water level controls. No site-specific water control project which seeks to combat or control the effect of changes in Lake Ontario water level fluctuations are recommended. Projects which simulate the natural cycle of water level fluctuation may be suitable such as at East Bay, but this is an exception.

Specific sites which have had altered hydrology due to road construction, inadequate culverting, or other blockages can benefit from water level restoration. Examples of sites which need restoration or management of water levels include Sawmill Cove Marsh, Red Creek Marsh, Teal Marsh, Butterfly Creek Wetlands, Ramona Beach Wetlands, and Cranberry Pond.

Rare species management. Species specific management needs exist within the Focus Area. These are detailed in the Overview of Focus Area Site Characteristics section. One concern has been raised regarding black terns and both recent and historic documented use of muskrat lodges and middens for nesting. A general observation is that the Lake Ontario wetlands population of muskrat has declined over recent years. It has been suggested that the muskrat decline is related to the regulation of Lake Ontario which may lead to flooding of muskrat dens during winter. Others feel that muskrat declines may be related to persistent or recurring environmental contaminants. Regardless of the cause, the decline in muskrats may have led to a loss of suitable black tern nesting habitat. Exploration of this hypothesis seems warranted in any black tern restoration effort.

Restoration of watersheds would also benefit several endangered, special concern, and otherwise scarce fish, particularly in the central reach where vegetated embayments with high water quality have historically supported these fish species (see Overview of Focus Area Site Characteristics section).

Increasing structural diversity. Focus Area sites that are open to lake level influences often have monotypic stands of cattail. After careful analysis of site characteristics, several methods of small scale alterations should be considered. These methods include creating potholes and non-linear level ditching. Mechanical techniques include the use of machinery to create sinuous open water channels or small potholes. Non-mechanical methods would include the manual removal of portions of monotypic stands of vegetation. One method which warrants further evaluation is limited mowing during ice cover which may provide open water channels for one season without permanent alteration of hydrology or wetland structure.

Sites which could benefit from increasing structural diversity include Sawmill Cove Marsh, East Bay Marsh, and Marsh East of Port Bay.

Shallow pond construction. Open water is lacking in several of the Focus Area sites and may be a limiting factor for waterfowl productivity in these sites. Implementation of this strategy is among the most important habitat management and restoration techniques in the focus area. Shallow ponds may be appropriate at sites where a cattail monoculture is present. More often though, shallow ponds are recommended at sites where upland may be available immediately adjacent to the wetland. Ponds could be constructed around the periphery of a wetland to provide open water, and would provide a missing habitat element. These ponds should be surrounded by dense nesting cover and other vegetative barriers to provide for the desired habitat values. These ponds are best suited to sites where the lake level has apparently led to cattail monocultures; the pond would also offer a stable water level habitat component. These ponds are unsuited to areas where residential development and their accompanying domestic predators are present.

Sites which could benefit from habitat pond construction include Payne Beach Wetlands, Sawmill Cove Marsh, East Bay Marsh, Brush Creek Wetlands, Marsh East of Port Bay, Red Creek Marsh, Dogwood Road Swamp, Teal Marsh, and Deer Creek Marsh.

Restoration and Reclamation. Several sites have a history of degradation through direct fill, roadway crossings, and other alteration of water flow. These areas can be restored by removing the offending fill and returning the site to more natural conditions.

Examples of this need occur at Cranberry Pond and Wetlands, Irondequoit Creek Wetlands, Port Bay and Wolcott Creek Marshes, Red Creek, Snake Swamp, Teal Marsh, and Butterfly Creek Wetlands.

Passive management. Some of the sites have had limited history of human disturbance. These areas of high ecological integrity should remain unaltered and management should be limited to protection and preservation of existing conditions.

Examples of such areas include Black Creek Wetlands, Wheeler Road Swamp, Otter Branch Wetlands, Beaver Creek and Wetlands, Cranberry Pond, Black Pond, Juniper Pond Swamp, and Jenzvolt Road Swamp.

Research prior to action. Areas which need further study to understand the natural resource values which they provide include Otter Branch Wetlands, Beaver Creek and Wetlands, Jenzvolt Road Swamp, Cranberry Pond, Black Creek Wetlands. These areas may provide valuable information regarding the conditions that are needed to maintain high quality habitat. This information could be used to guide management in other areas by identifying the most important elements in relatively pristine settings. Relatively simple research such as community inventories are needed, such as those conducted by Andrew Nelson which documented the occurrence of bog vegetation in several of these lakeshore wetlands, notably Black Creek Wetlands.

Public Use Management

Enhancing public use. Resources within the focus area should be available for public enjoyment when possible. Certain areas should be enhanced for guided or interpreted public access. Opportunities for informal nature studies or new nature centers exist at Yanty Creek Marsh, Braddock Bay, Durand Eastman Park, Rice Creek Wetlands, Sterling Creek Wetlands, Teal Marsh, Deer Creek Marsh, and Southwicks Beach State Park. A new nature center is particularly needed in association with Southwicks Beach and Lakeview WMA that would advocate responsible use of this largely unknown and extremely valuable resource area. Trails, boardwalks, and interpretive signage would enhance public use at many sites under state or local government ownership. Good design and sensitive placement of these enhancements would ensure public safety and continued wildlife uses. Every effort should be made to allow for handicapped accessibility.

Limiting human use. Several of the more pristine areas which exhibit high ecological integrity and are used by species which are intolerant of human disturbance should receive limited human use. American black ducks are known to be intolerant of human presence and prefer secluded areas. Rare species also may require seclusion and should be protected during sensitive life stages such as during the nesting season. Finally, disturbance of areas with unusually high fish or wildlife population levels during the spawning or breeding season should remain undisturbed. Most areas identified as American black duck habitat should not be promoted for public access during the nesting season, which is between April and July.

Water Quality Improvement

Watershed management plans are needed for virtually every tributary due to the amount of watershed disturbance throughout the focus area. Certain areas offer opportunities for tremendous improvement which are likely to directly benefit valuable natural resources. Examples of these sites are North Pond tributaries, Sodus Bay tributaries, Port Bay tributaries, Snake Swamp, Butterfly Creek Wetlands, Ramona Beach Wetlands, and Deer Creek Marsh. Some of these sites would also incorporate valuable warmwater and coldwater fisheries restorations. The highest priority areas would be the coldwater, alkaline North Pond tributaries which can support native Atlantic salmon populations, and the Sodus Bay

tributaries for warmwater and possibly coldwater fish populations including possible rare or scarce species. Implementation of these plans is likely to benefit many fish and wildlife species by limiting the excess nutrient loads to the receiving wetlands and ponds.

Riparian corridor buffers. Many of the tributaries in the Focus Area do not have intact riparian vegetation or need protection of existing vegetation. A Focus Area-wide effort to revegetate riparian corridors is needed which would include dense nesting cover, shrubs and trees. The corridor width should be determined based on the density of adjacent development, the slopes involved, soil characteristics, and the type of vegetation. In areas where revegetation is not possible such as in some areas of active agriculture, sedimentation ponds should be constructed along intermittent drainages. In other areas, revegetation is possible through fencing programs which would exclude tributaries from pasturage. The need for this strategy is greatest in the eastern reach, particularly at Deer Creek, North and South Sandy Ponds, and Lakeview Marshes.

Examples of some areas needing riparian revegetation include Brush Creek Wetlands and Yanty Creek Marsh, East Bay Marsh, Port Bay and Wolcott Creek Marsh, Red Creek Marsh, Sterling Creek Wetlands, Sodus Bay tributaries, Sage Creek Marsh, Deer Creek Marsh, North Pond tributaries, Lakeview Marshes, Black Pond, Stony Creek Marsh, and Ray Bay Marsh.

Adjacent buffer areas. Many areas provide excellent wetland values but provide limited habitat values due to the lack of adjacent natural area. Adjacent buffers are needed in areas which have been largely deforested, particularly in the western reach. Reforestation should be sought in these areas to provide water quality improvement and migratory habitat, particularly for passerine birds. Examples of such sites include Benedict Beach Marsh, Long Pond Wetlands, Second Creek Marsh, Brush Creek Wetlands, Dogwood Road Swamp, and Stony Creek Marsh.

Other sites which are already of high quality but may be degraded due to deforestation in a portion of the immediate watershed could be largely restored through active revegetation of adjacent areas. Examples include Sterling Creek Wetlands, Red Creek Marsh, Second Creek Marsh, Marsh East of Port Bay, Brush Creek Marsh, and Dogwood Road Swamp.

Retention pond construction. Areas which currently receive high sedimentation rates from specific sources may be improved through the use of sedimentation ponds which can intercept sediment loads originating on intermittent streams and drainages. These ponds may also provide direct habitat if sufficient vegetated buffer is provided.

Examples of appropriate sites for sedimentation ponds include Sodus Bay tributaries, Root Swamp, East Bay, Brush Creek Marsh, Port Bay and Wolcott Creek Marsh, Red Creek Marsh, Dogwood Road Swamp, and Deer Creek Marsh.

RECOMMENDATIONS FOR MEMBERSHIP FOR THE IMPLEMENTATION TEAM

The planning team recommends a regional approach for the implantation team. Separate implementation teams for each of the three reaches of the Focus Area should be established and coordinated through an oversight committee which would provide continuity and technical guidance. Each reach implementation team should use additional resources as available, especially through county Environmental Management Councils.

The following partial list of people are recommended for the implementation team.

Western Reach:
- Frank Dobson - outdoor writer, birder
- Sharon Skelly - NYS DEC regional biologist
- Edward Fiorino - Western NY Waterfowl Association, Braddock Bay Advisory Committee
- Andy Zepp - Central and Western NY Chapter of TNC
- Department of Transportation representative
- SWCD representative

Central Reach:
- Rob Williams - Wayne County SWCD and sportsman
- Jim Smith - Wayne County SWCD and sportsman
- Andrew Nelson - Local botonist
- Art Kirsh - DEC biologist
- Dr. Marsh - Oswego State
- Rochester Gas and Electric representative

Eastern Reach:
- Gerry Smith - Nature Conservancy and Onondaga Audubon
- Lee Chamberlain - retired DEC biologist
- John DeHollander - Oswego County SWCD
- Tom Cutter - SLEOC
- DEC Region 6 and 7 representatives
- Rocco Cresenzi - Southwick's Beach State Park

Coordinating Committee
- Tom Hart - Department of State Coastal ManAgement
- Carl Schwartz - US Fish and Wildlife Service
- DEC representative (Ward or Dave?)

REFERENCES

Andrle, R.F. and J.R. Carroll, eds. 1988. The Atlas of Breeding Birds in New York State. NY Cornell University Press, 551pp.

Atlantic Flyway Council, 1972. Techniques Handbook of the Waterfowl Habitat Development and Management Committee, Bolton, MA, 218pp.

Drennan, S.R. 1981. "Where to Find Birds in New York State". Syracuse University Press, 499 pp.

Geis, J.W. and J.L. Kee. 1977. Coastal Wetlands Along Lake Ontario and Saint Lawrence River in Jefferson County, New York. State University of New York/College of Environmental Science and Forestry, Institute of Environmental Program Affairs, Syracuse, 130pp.

Hart, T.F. and A.S. Milliken. 1991. Significant Coastal Fiah and Wildlife Habitat Protection in New York's Coastal Management Program. Coastal Management, Vol. 19, pp 55-72.

Herdendorf, C.E., S.M. Hartley, and M.D. Barnes, eds. 1981. Fish and Wildlife resources of the Great Lakes coastal wetlands within the United States. Volume one: overview. U.S. Fish and Wildlife Service, Washington, D.C. 469pp.

Herdendorf, C.E., S.M. Hartley, and M.D. Barnes, eds. 1981a. Fish and Wildlife resources of the Great Lakes coastal wetlands within the United States. Volume two: Lake Ontario. U.S. Fish and Wildlife Service, Washington, D.C. 1288pp.

Holmquist, C.L. 1991. Avian Use of Riparian Corridors Located in Grazed Pastures, MS Thesis, Pennsylvania State University.

Lewis, L.M. and P.P. Hamilton. 1981. Lake Ontario Shoreline Protection Report (Sage Creek Marsh). U.S. Fish and Wildlife Service, Washington D.C. 127pp.

Lewis, L.M. and P.P. Hamilton. 1981. Lake Ontario Shoreline Protection Report. U.S. Fish and Wildlife Service, Washington D.C., 127pp.

Linde, A.F. 1969. Techniques for Wetland Management. Wisconsin Department of Natural Resources, Madison, 156pp.

Milne, J.E. 1985. The Landowner's Options. Maine Critical Areas Program and The Nature Conservancy, 37pp.

Morton, W.B. 1986. Stream Corridor Management: A Basic Reference Manual, NYS Department of Environmental Conservation, Division of Water, Albany, 111pp.

Nelson, A. 1990. Pond Hundred. 8pp., with appendix.

Nelson, A. 1990. The Vegetation of Black Creek Basin. 38pp., with appendix.

New Jersey Department of Environmental Protection, 1988. Wetland Buffer Delineation Method, Division of Coastal Resources, Trenton, 73pp., with appendices.

NYS Department of Environmental Conservation, 1990. Beaver Populations in Relation to Objectives, Albany.

NYS Department of Environmental Conservation. Aerial Winter Waterfowl Inventory Data Sheets for 1986 through 1991.

NYS Department of Environmental Conservation. 1990. Biennial Report Rotating Intensive Basin Studies Water Quality Assessment Program 1987-1988, Division of Water, Albany, 160pp., with appendix.

NYS Department of State. 1989. New York's Eastern Lake Ontario Sand Dunes. Division of Coastal Resources and Waterfront Revitalization, Albany, 148pp., with appendix.

Ontario Ministry of Natural Resources. 1986. Pinery Provincial Park Management Plan, 9pp., Ontario, Canada.

U.S. Environmental Protection Agency, 1991. Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Office of Water, Washington D.C., 275pp., with appendices.

Ozard, J.W. 1984. Technical Memorandum: Procedures Used to Identify, Evaluate and Recommend Areas for Designation as "Significant Coastal Fish and Wildlife Habitats". New York State Department of Environmental Conservation, 21pp., with appendices.

Ray, P.K., R.A. Sweeny, T.W. Kana, C.Y. McCants, M. Murday, C. Galvin. 1980. An Inventory of the US Shoreline of Lake Ontario and Evaluation of Structural Modification for Damage Reduction. US Army Corps of Engineers, Buffalo District. 67pp.

Reschke, C. 1990. Ecological Communities of New York State. New York State Department of Environmental Conservation, 95pp.

Smith, C.L. 1985. The Inland Fishes of New York State. NYS Department of Environmental Conservation, 522pp.

Spencer, H.E. 1986. Black Duck in Di Silvestro, ed. 1986. Audubon Wildlife Report 1986, National Audubon Society, New York, 1094pp.

Swift, B. 1991. Breeding Waterfowl Survey Data for areas within the focus area, NYS Department of Environmental Conservation, Delmar.

Van Diver, B.B. 1985. Roadside Geology of New York. Mountain Press, 411pp.

Wayne County Planning Board, 1977. Coastal Zone Management Study Stage II. Lyons, NY, 121pp.

PLANNING TEAM MEMBERS

Ward Dukelow, Chair

Senior Wildlife Biologist, New York Department of Environmental Conservation, Region 7 (Cortland) Bureau of Wildlife since 1973. Bachelor's degree in Biology from SUNY College of Environmental Science and Forestry, Syracuse, New York, 1972.

Since 1979, Mr. Dukelow has been responsible for management of all 13 Wildlife Management Areas in Region 7, encompassing 54,000 acres. His specialty is in waterfowl biology.

David C. Woodruff

Senior Wildlife Biologist, New York Department of Environmental Conservation, Region 8 (Avon) since 1972. Associate's degree in Natural Resources Conservation from SUNY Morrisville, New York in 1969. Bachelor's degree in Wildlife Mangement from Utah State University, in 1971.

Mr. Woodruff is a certified Wildlife Biologist with responsibilities for and expertise in wetland habitat management, regulations and acquisition, and public lands management.

Russell Cole

Senior Wildlife Biologist, New York Department of Environmental Conservation, Habitat and Wetlands Inventory Units (Albany) since 1975. Bachelor's degree in Biology from Cornell University in 1968.

Mr. Cole's areas of expertise include natural resource inventories, air photo interpretation, habitat mapping, and wetland program implementations.

Carl Schwartz

Fish and Wildlife Biologist, US Fish and Wildlife Service, New York Field Office (Cortland) since 1974. Bachelor's degree in Wildlife Biology from Colorado State University and Master's degree in Wildlife Management from Pennsylvania State University.

Mr. Schwartz has served in waterfowl management, firefighting, and engineering in various offices in Pennsylvania, Boston, and New York. He curently leads the federal efforts for the North American Waterfowl Plan in New York State.

Donna Schwender

Fish and Wildlife Biologist, US Fish and Wildlife Service, New York Field Office (Cortland) since 1991. Associate's degree in Natural Resource Conservation from SUNY Morrisville in 1986. Bachelor's and Master's degrees in Environmental and Forest Biology in 1988 and 1990.

Ms. Schwender's expertise includes wildlife biology and management with experience in the Great Smoky Mountains National Park and the New York Field Office.

Thomas Hart

Coastal Resources Specialist, New York Department of State Coastal Management Program since 1984. Bachelor's degree in Biology from SUNY at Buffalo in 1978. Master's degree in Ecology from SUNY College of Environmental Science and Forestry in 1980.

Mr. Hart specializes in preparation of ecologically-based management plans and significant habitat protection and management. He led the designation process for over 250 significant habitat sites in New York and is now responsible for developing resource protection standards.

Gregory Capobianco

Coastal Resources Specialist, New York Department of State Coastal Management Program since 1990. Bachelor's degree in Biology from SUNY at Albany in 1986.

Mr. Capobianco's expertise includes rare species management and inventory, stewardship planning, and cartography with experience in The Nature Conservancy and the Natural Heritage Program. Assisted in the designation process for 150 significant habitat sites in New York and is now responsible for coordinating the Significant Habitat Program.

Appendix A1 - Explanation of Natural Heritage Program Ranks

Communities and rare species are the mapping units or "elements" of the Heritage inventory. Each community and species element is assigned an "element rank" consisting of a combined global and state rank. The global rank reflects the rarity of the element throughout the world and the state rank reflects the rarity within New York State (The Nature Conservancy 1982). Global ranks for communities are not currently standardized by The Nature Conservancy, so the ranks listed in the community descriptions are estimated global ranks.

GLOBAL RANKS

G1 = Critically imperiled throughout its range due to extreme rarity (5 or fewer occurrences, or very few remaining individuals, acres, or miles of stream) or extremely vulnerable to extinction due to biological factors.

G2 = Imperiled throughout its range due to rarity (6 - 20 occurrences, or few remaining individuals, acres, or miles of stream) or highly vulnerable to extinction due to biological factors.

G3 = Either very rare throughout its range (21 - 100 occurrences), with a restricted range (but possibly locally abundant), or vulnerable to extinction due to biological factors.

G4 = Apparently secure throughout its range (but possibly rare in parts of its range).

G5 = Demonstrably secure throughout its range (however it may be rare in certain areas).

GU = Status unknown.

STATE RANKS

S1 = Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or especially vulnerable to extirpation in New York State for other reasons.

S2 = Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or very vulnerable to extirpation in New York State for other reasons.

S3 = Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.

S4 = Apparently secure in New York State.

S5 = Demonstrably secure in New York State.

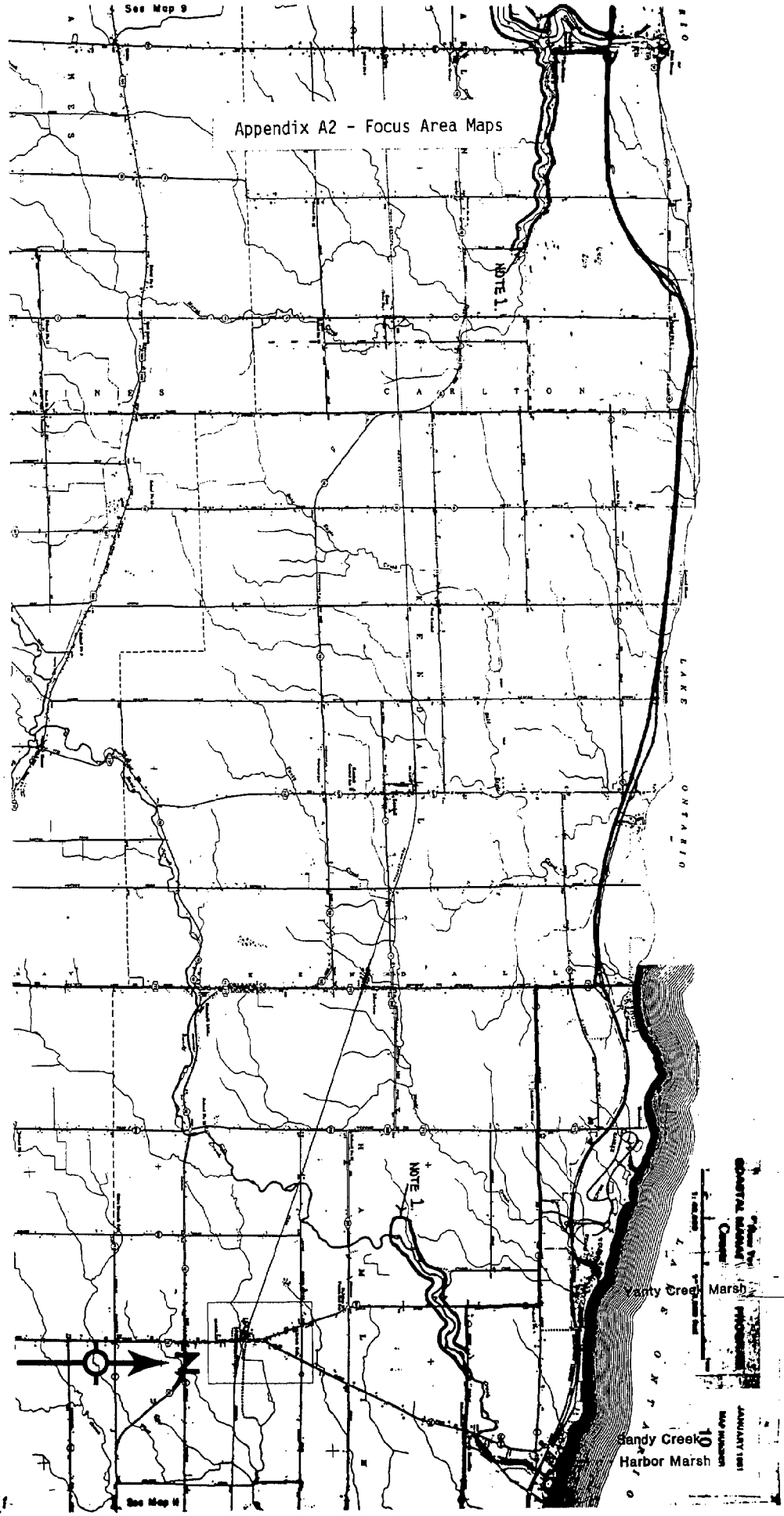
SH = No extant sites known in New York State but it may still exist.

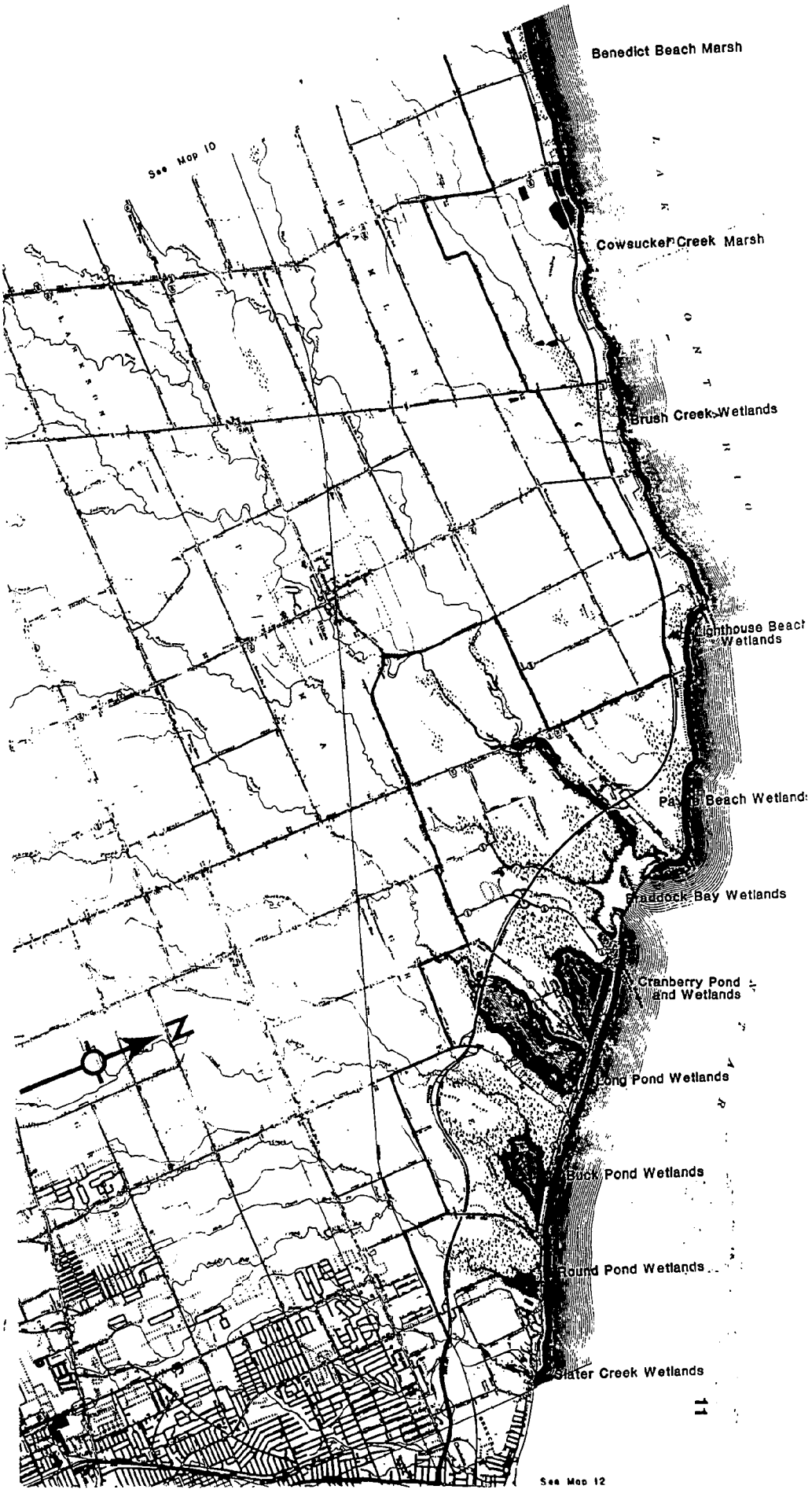
SU = State status unknown.

"Q" added to the rank indicates a question exists whether or not the taxon is a distinct taxonomic entity.

"?" added to the rank indicates uncertainty about the rank.

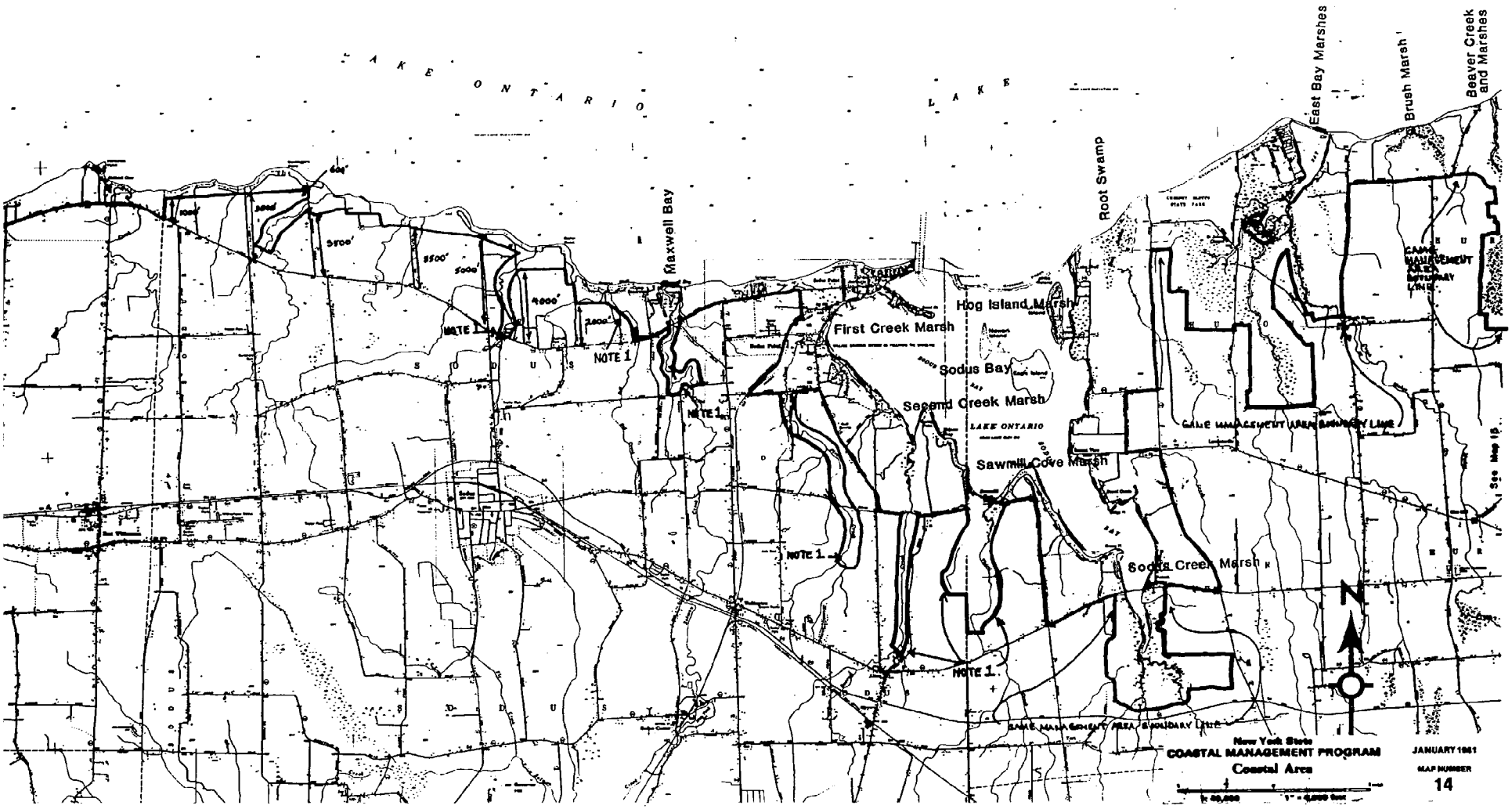
Appendix A2 - Focus Area Maps




Benedict Beach Marsh
See Map 10
Cowsucker Creek Marsh
Brush Creek Wetlands
Lighthouse Beach Wetlands
Haddock Bay Wetlands
Cranberry Pond and Wetlands
Long Pond Wetlands
Buck Pond Wetlands
Round Pond Wetlands
Slater Creek Wetlands
See Map 12

LAKE ONTARIO
Genesee River
Durand-Eastman Park Wetlands
IRONDEQUOIT BAY
Irondequoit Creek Wetlands
PARK BOUNDARY LINE
MUNICIPAL BOUNDARY LINE
See Map 11
See Map 13
New York State
COASTAL MANAGEMENT PROGRAM
Coastal Area
JANUARY 1981
MAP NUMBER
12

See Map 12
See Map 14
Salmon Creek
13

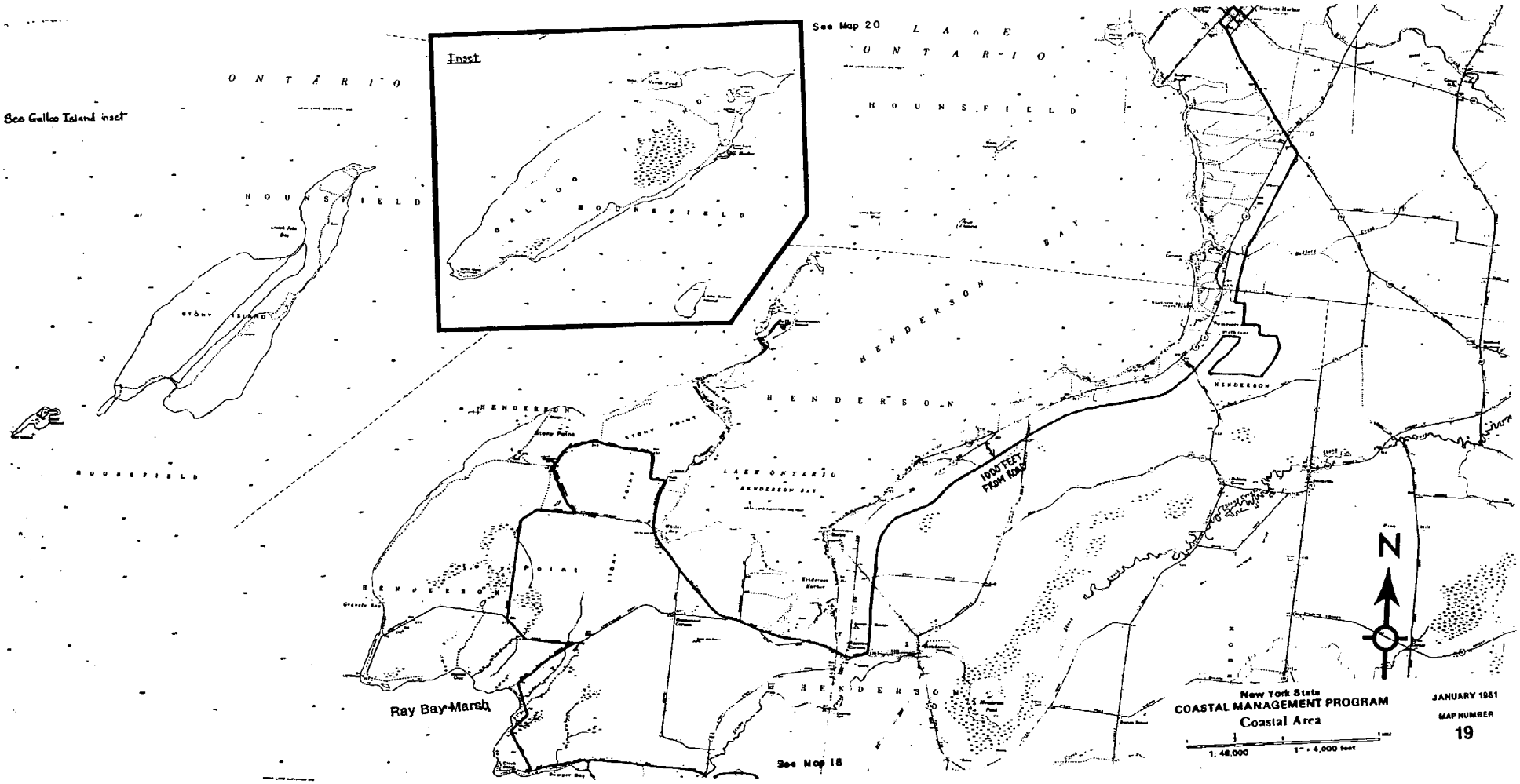

LAKE ONTARIO
LAKE ONTARIO
Maxwell Bay
Root Swamp
East Bay Marshes
Brush Marsh
Beaver Creek and Marshes
Hog Island Marsh
First Creek Marsh
Sodus Bay
Second Creek Marsh
Sawmill Cove Marsh
Sodus Creek Marsh
NOTE 1
N
New York State
COASTAL MANAGEMENT PROGRAM
Coastal Area
JANUARY 1981
MAP NUMBER
14

See Map 14
GAME MANAGEMENT AREA BOUNDARY LINE
Port Bay and Wolcott Creek Marshes
Marsh east of Port Bay
Red Creek Marsh
Black Creek Wetlands
Blind Sodus Bay
Little Sodus Bay
Sterling Creek Wetlands
Juniper Pond Swamp
Jenzvolt Road Swamp
Wheeler Road Swamp
Dogwood Road Swamp
Ninemile Creek Swamp
Coastal Area
MAP NUMBER 15
JANUARY 1982

Eightmile Creek
West Lake Road Swamp
Snake Swamp
Rice Creek Swamp
Oswego River
Teal Marsh
See Map 17
New York State
COASTAL MANAGEMENT PROGRAM
Coastal Area
JANUARY 1981
MAP NUMBER
16
1: 48,000
1" = 4,000 feet
N

See Map 16
Otter Branch Wetlands
Catfish Marsh
Butterfly Creek Wetlands
Mexico Point Marshes
Little Salmon River Marshes
Sage Creek Marsh
East Sage Creek
Ramona Beach Marsh
1000 FEET FROM ROAD
Grindstone Creek and Marshes
Salmon River
Deer Creek Marshes
N
See Map 18
New York State
COASTAL MANAGEMENT PROGRAM
Coastal Area
JANUARY 1981
MAP NUMBER
17

See Map 19
Stony Creek Marsh
Black Pond Marshes
Lakeview Marshes
1000 FEET FROM ROAD
Cranberry Pond
North Pond and Tributaries
South Pond Rainbow Shores
See Map 20
N
New York State COASTAL MANAGEMENT PROGRAM
Coastal Area
JANUARY 1981
MAP NUMBER 18


See Map 20
LAKE ONTARIO
HOUNSFIELD
Inset
GALLOO ISLAND
HOUNSFIELD
See Galloo Island inset
ONTARIO
HOUNSFIELD
STONY ISLAND
HOUNSFIELD
HENDERSON BAY
HENDERSON
HENDERSON
Stony Point
LAKE ONTARIO
HENDERSON BAY
1000 FEET FROM ROAD
HENDERSON
HENDERSON
HENDERSON
Ray Bay Marsh
See Map 18
N
New York State
COASTAL MANAGEMENT PROGRAM
Coastal Area
1: 48,000
1" = 4,000 feet
JANUARY 1981
MAP NUMBER
19

US Department of Commerce
NOAA Coastal Services Center Library
2234 South Hobson Avenue
Charleston, SC 29405-2413

NOAA COASTAL SERVICES CTR LIBRARY
3 6668 14111505 7