COASTAL FISH AND WILDLIFE RATING FORM

Name of area: **Iona Island Marsh**
Designated: **November 15, 1987**
Revised: **August 15, 2012**
County: **Rockland**
Town(s): **Stony Point**
7.5' Quadrangles: **Peekskill, NY**

Assessment Criteria	**Score**
Ecosystem Rarity (ER) -- the uniqueness of the plant and animal community in the area and the physical, structural and chemical features supporting this community.	
ER Assessment - A large, undeveloped tidal freshwater–brackish marsh in the Hudson River; rare in the major ecological region.	**25**
Species Vulnerability (SV) – the degree of vulnerability throughout its range in New York State of a species residing in the ecosystem or utilizing the ecosystem for its survival.	
SV Assessment –Bald eagle (T), northern harrier (T), pied-billed grebe (T), osprey (SC) Additive division: 25 + 25/2 + 25/4 + 16/8= 45.75	**45.75**
Human Use (HU) -- the conduct of significant, demonstrable commercial, recreational, or educational wildlife-related human use, either consumptive or non-consumptive, in the area or directly dependent upon the area.	
HU Assessment -- A Hudson River National Estuarine Research Reserve component site; regionally significant for fish and wildlife research and education. Also popular among Rockland County birders.	**36**
Population Level (PL) – the concentration of a species in the area during its normal, recurring period of occurrence, regardless of the length of that period of occurrence.	
PL Assessment -- Concentrations of various wetland wildlife species in this area are unusual in Rockland County	**4**
Replaceability (R) – ability to replace the area, either on or off site, with an equivalent replacement for the same fish and wildlife and uses of those same fish and wildlife, for the same users of those fish and wildlife.	
R Assessment – Irreplaceable	**1.2**
Habitat Index (ER+SC+HU+PL)= 110.75 **Significance Value (HI x R)=**	**132.9**

LOCATION AND DESCRIPTION OF HABITAT

Iona Island Marsh is located between Iona Island and the west shore of the Hudson River approximately three miles northwest of the City of Peekskill in the Town of Stony Point, Rockland County (7.5' Quadrangle: Peekskill, N.Y.). This fish and wildlife habitat is an approximate 300-acre tidal, freshwater to brackish wetland dominated by common reed (*Phragmites australis*), non-vegetated tidal flats, submerged aquatic vegetation beds, dominated by water celery (*Vallisneria americana*), and rocky uplands.

Tidal creek channels meander through the marsh, but there is limited open water. A portion of the tidal marshes receive freshwater inflows from Doodletown Brook, a small, high-gradient stream. Parts of the habitat are locally known as Salisbury Meadow, Ring Meadow, Snake Hole Creek, and Round Island. The raised railroad causeway at each end of Iona Island and the access road causeway reduce the hydrologic exchange between the Hudson River and the tidal marshes. The lands surrounding the habitat are steep, rocky, undeveloped forested parkland subject to limited human disturbance.

Iona Island Marsh includes a sizeable tidal freshwater marsh within the Hudson estuary. The site has been designated one of four component sites of the Hudson River National Estuarine Research Reserve and is also registered as a National Natural Landmark with the U.S. Department of the Interior. Iona Island Marsh is located within Bear Mountain State Park. The area is also recognized as a Bald Eagle Wintering Sanctuary and Important Bird Area.

This habitat supports eastern annual saltmarsh aster (*Symphyotrichum subulatum*) (T), eastern prickly pear (*Opuntia humifusa*) (exploitably vulnerable), false daisy (*Eclipta prostrata*) (E), Long's bittercress (*Cardamine longii*) (T), saltmarsh bulrush (*Scirpus robustus*) (E), saltmarsh spikerush (*Eleocharis halophila*) (T), small-flowered crowfoot (*Ranunculus micranthus*) (T), spongy arrowhead (*Sagittaria calycina*) (T), terrestrial starwort (*Callitriche terrestris*) (T), water pigmyweed (*Crassula aquatica*) (E) and yellow flatsedge (*Cyperus flavescens*) (E). The rocky islands bisected by the causeway contain fragile stands of walking fern (*Asplenium trichomanes*) and prickly pear cactus (*Opuntia humifusa*), two unusual plant species in New York.

Principal habitat disturbances in the area are traffic on N.Y.S. Route 9W and the railroad (which parallel the western and eastern boundaries of the area, respectively), a causeway that bisects the marsh from Route 9W to the island, and invasive species. Tidal flow between the north and south sections of the marsh is accommodated by culvert pipes that run under the causeway. Other disturbances include the near complete displacement of native plant communities by invasive species including common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*), although marsh restoration through Phragmites control is underway.

FISH AND WILDLIFE VALUES

This habitat is a highly productive wetland, with minimal human disturbance, providing favorable habitats for a variety of fish and wildlife species. Shallow bay areas and creek channels in Iona Island Marsh provide spawning and nursery habitats for a variety of coastal migratory and resident freshwater fishes. Species found in the area include American eel (*Anguilla rostrata*), alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), white perch (*Morone americana*), striped bass (*Morone saxatilis*), banded killifish (*Fundulus diaphanous*), and mummichog (*Fundulus heteroclitus*). The submerged aquatic vegetation provides food for fish, invertebrates and waterfowl as well as refuge for fish and invertebrates.

Iona Island supports five-lined skinks (*Eumeces fasciatus*), painted turtle (*Chrysemys picta*), common snapping turtle (*Chelydra serpentina*), map turtle (*Graptemys geographica*), water snake (*Nerodia s. sipedon*), black rat snake (*Elaphe obsoleta*), American toad (*Bufo americanas*), spring peeper (*Pseudoacris crucifer*), and green frog (*Rana clamitans*).

Concentrations of herons, waterfowl, osprey (*Pandion haliaetus*) (SC), pied-billed grebe (*Podilymbus podiceps*) (T) and shorebirds occur during spring (March-April) and fall (September-November) migrations. Bald eagle (*Haliaeetus leucocephalus*) (T) (overwinter) and Northern harrier (*Circus cyaneus*) (T) are also present. Other resident wildlife species in the area include white-tailed deer, muskrat and mink. Needham's skimmer (*Libellula needhami*) has also been observed in the area.

The diversity and abundance of wildlife species in Iona Island is unusual in the lower Hudson River. Iona Island has been a designated Bird Sanctuary since 1947. Opportunities for birdwatching, along with recreational fishing, and informal nature study, attract a substantial number of Rockland County residents to the area. Iona Island is also a component of the Hudson River National Estuarine Research Reserve, a site of research and education activities in the Hudson Valley.

IMPACT ASSESSMENT

It is essential that any potential impacts on Iona Island Marsh be evaluated with respect to its use for environmental research and education and the need to maintain natural or controlled experimental conditions.

Any activity that would substantially degrade water quality, increase turbidity or sedimentation, reduce freshwater inflows, alter tidal fluctuations, temperature or water depths in Iona Island Marsh would have an effect on marsh plant and animal communities. All species may be affected by water pollution, such as chemical contamination (including food chain effects resulting from bioaccumulation), oil spills, excessive turbidity or sediment loading, and nonpoint source runoff.

Any physical alteration of the habitat, through dredging, filling, or bulkheading, would result in a direct loss of valuable habitat area. Impediments to movement and migration of aquatic species, whether physical or chemical (e.g. dams, dikes, channelization, bulkheading and sedimentation, etc.), should be prohibited. Habitat disturbances would be most detrimental during bird nesting, and fish spawning and nursery periods, which generally extend from April through August for most warm water species as well as bald eagle overwintering periods (December through March).

Elimination or disturbance of adjacent riparian habitats would adversely affect the habitat. Such areas should be protected. Existing areas of natural vegetation bordering Iona Island Marsh and its tributaries should be maintained and where possible restored to provide perch sites, bank cover, soil stabilization, maintain or improve water quality and provide buffer areas from development.

Alteration to existing causeways and bridges for the railroad could affect the hydrology and extent of shoreline habitat areas. Any construction related to these structures should utilize the best available science and technology to reduce and avoid negative impacts to the habitat area.

Any alteration of the access road to Iona Island Marsh or causeway should be designed to maintain or restore natural tidal flows in the marsh. Activities that would subdivide this relatively large, undisturbed area into smaller fragments should be restricted. However, habitat management activities, including expansion of productive littoral areas, may be designed to maintain or enhance populations of certain fish or wildlife species.

The presence of invasive species and the expansion of their range within the habitat may result in changes in native plant, vertebrate and invertebrate species composition and abundance. In particular, expansion of common reed (*Phragmites australis*) has been correlated with reductions in populations of several marsh-breeding birds and declines in avian biodiversity. Effective control of invasive plant species, through a variety of means, may improve fish and wildlife species use of the area. Control methods, including biological controls and regulated use of herbicides must only be implemented, if other methods of control have been explored, and then only under permit with strict adherence to all precautionary measures to avoid impacts to non-target species. The primary goals of such efforts must be recovery and maintenance of habitat for native fish and wildlife species.

It is recommended that rare plant species occurring in the area be protected from adverse effects of human activities. Management of public access may be necessary to ensure that the various human uses of fish and wildlife resources in the area are compatible.

HABITAT IMPAIRMENT TEST

A **habitat impairment test** must be met for any activity that is subject to consistency review under Federal and State laws, or under applicable local laws contained in an approved local waterfront revitalization program. If the proposed action is subject to consistency review, then the habitat protection policy applies, whether the proposed action is to occur within or outside the designated area.

The specific **habitat impairment test** that must be met is as follows.

> In order to protect and preserve a significant habitat, land and water uses or development shall not be undertaken if such actions would:
>
> 1. destroy the habitat; or,
>
> 2. significantly impair the viability of a habitat.

Habitat destruction is defined as the loss of fish or wildlife use through direct physical alteration, disturbance, or pollution of a designated area or through the indirect effects of these actions on a designated area. Habitat destruction may be indicated by changes in vegetation, substrate, or hydrology, or increases in runoff, erosion, sedimentation, or pollutants.

Significant impairment is defined as reduction in vital resources (e.g., food, shelter, living space) or change in environmental conditions (e.g., temperature, substrate, and salinity) beyond the tolerance range of an organism. Indicators of a significantly impaired habitat focus on ecological alterations and may include but are not limited to reduced carrying capacity, changes in community structure (food chain relationships, species diversity), reduced productivity and/or increased incidence of disease and mortality.

The *tolerance range* of an organism is not defined as the physiological range of conditions beyond which a species will not survive at all, but as the ecological range of conditions that supports the species population or has the potential to support a restored population, where practical. Either the loss of individuals through an increase in emigration or an increase in death rate indicates that the tolerance range of an organism has been exceeded. An abrupt increase in death rate may occur as an environmental factor falls beyond a tolerance limit (a range has both upper and lower limits). Many environmental factors, however, do not have a sharply defined tolerance limit, but produce increasing emigration or death rates with increasing departure from conditions that are optimal for the species.

The range of parameters which should be considered in applying the habitat impairment test includes but is not limited to the following:

1. physical parameters such as living space, circulation, flushing rates, tidal amplitude, turbidity, water temperature, depth (including loss of littoral zone), morphology, substrate type, vegetation, structure, erosion and sedimentation rates;
2. biological parameters such as community structure, food chain relationships, species diversity, predator/prey relationships, population size, mortality rates, reproductive rates, meristic features, behavioral patterns and migratory patterns; and,
3. chemical parameters such as dissolved oxygen, carbon dioxide, acidity, dissolved solids, nutrients, organics, salinity, and pollutants (heavy metals, toxics and hazardous materials).

KNOWLEDGABLE CONTACTS

Natural Resources Bureau
NYS Department of State
99 Washington Ave, Suite 1010
Albany, NY 12231
Phone: (518) 474.6000

Hudson River National Estuarine Research Reserve
Norrie Point Environmental Center
PO Box 315
Staatsburg, NY 12580
Phone: (845) 889.4745

Hudson River Fisheries Unit
NYS Department of Environmental Conservation
21 South Putt Corners Road
New Paltz, NY 12561
Phone: (845) 256.3071

The Hudson River Estuary Program
NYSDEC Region 3
21 S Putt Corners Rd
New Paltz, NY 12561
Phone: (845) 256.3016

New York Natural Heritage Program
625 Broadway, 5th Floor
Albany, NY 12233-4757
Phone: (518) 402.8935

NYS Office of Parks, Recreation & Historic Preservation
PO Box 427 3006 Seven Lakes Drive
Bear Mountain, NY 10911
Phone: (845) 786-2701