

COASTAL FISH AND WILDLIFE RATING FORM

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Name of area: **Piermont Marsh**  
 Designated: **November 15, 1987**  
 Revised: **August 15, 2012**  
 County: **Rockland**  
 Town(s): **Orangetown**  
 7.5' Quadrangles: **Nyack, NY**

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<u>Assessment Criteria</u>	<u>Score</u>
<b>Ecosystem Rarity (ER) -- the uniqueness of the plant and animal community in the area and the physical, structural and chemical features supporting this community.</b>	
<b>ER Assessment</b> - This is the only large, undeveloped, predominantly brackish marsh on the Hudson River; rare in the major ecological region.	<b>25</b>
<b>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.</b>	
<b>SV Assessment</b> – Pied-billed grebe (T); Least bittern (T) Additive Division: $25 + 25/2 = 37.5$	<b>37.5</b>
<b>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.</b>	
<b>HU Assessment</b> -- Component site of the Hudson River National Estuarine Research Reserve, providing opportunities for fish and wildlife related research and education, of regional significance. Popular birding area.	<b>36</b>
<b>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.</b>	
<b>PL Assessment</b> -- Concentrations of various fish and wildlife species in this area are unusual in Rockland County and the lower Hudson Valley. Geometric mean: $\sqrt{4 \times \sqrt{9}} = 6$	<b>6</b>
<b>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.</b>	
<b>R Assessment</b> – Irreplaceable	<b>1.2</b>
<b>Habitat Index (ER+SV+HU+PL)= 104</b>	<b>Significance Value(HI x R)= 125.4</b>

## LOCATION AND DESCRIPTION OF HABITAT

Piermont Marsh is located on the west side of the Hudson River at the southern edge of the Village of Piermont in the Town of Orangetown, Rockland County (7.5' Quadrangle: Nyack, N.Y.). The fish and wildlife habitat is an approximate 780 acres area, encompassing a large, intertidal, predominantly brackish marsh; extensive tidal shallows (less than 6 feet deep below mean low water); uplands to the west and north of the marsh; and the mouths of Sparkill and Crumkill Creeks.

The marsh area is dominated by invasive common reed (*Phragmites australis*). Native species including narrow-leaved cattail (*Typha angustifolia*), saltmarsh cordgrass (*Spartina alterniflora*), saltmeadow cordgrass (*Spartina patens*), and saltgrass (*Distichlis spicata*) are also present. Sparse growths of pondweeds (*Potamogeton perfoliatus*) are present in the shallows. Sparkill Creek and Crumkill Creek meander through the marsh, but account for a very limited amount of open water. This habitat also includes eastern grasswort (*Lilaeopsis chinensis*) (L.) Kuntze (T), marsh straw sedge (*Carex hormathodes*) (T), saltmarsh bulrush (*Scirpus robustus*) (E) and southern dodder (*Cuscuta obtusiflora* var. *glandulosa*) (E). Other invasive species are present including purple loosestrife (*Lythrum salicaria*).

Piermont Marsh is bounded on the north by a mile-long earthen pier, constructed in 1839 as the eastern terminus of the Erie Railroad. Most of Piermont Marsh and the land area to the west (predominantly steep, undeveloped, forestland) are within Tallman Mountain State Park, owned by the Palisades Interstate Park Commission. The NYSDEC owns an approximate 100-acre portion at the north end of the marsh.

Piermont Marsh is the largest, undeveloped, intertidal brackish marsh within the Hudson River Estuary. Piermont Marsh is one of four component sites of the Hudson River National Estuarine Research Reserve, dedicated to environmental research and education.

## FISH AND WILDLIFE VALUES

Sparkill Creek and Crumkill Creek provide limited 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*). Red-jointed fiddler crabs (*Uca minax*) are abundant in the marsh, and Atlantic blue crabs (*Callinectes sapidus*) occur regularly in the shallows. The submerged aquatic vegetation beds provide food for fish, invertebrates and waterfowl as well as refuge for fish and invertebrates.

Piermont Marsh and the area northwest of the pier provide habitat for common snapping turtle (*Chelydra serpentina*), northern water snake (*Nerodia s. sipedon*) and diamondback terrapin (*Malaclemys terrapin*).

Probable or confirmed breeding bird species in Piermont Marsh include pied-billed grebe (*Podilymbus podiceps*) (T), least bittern (*Ixobrychus exilis*), green-backed heron (*Butorides virescens*), mallard (*Anas platyrhynchos*), American black duck (*Anas rupribres*), gadwall (*Anas strepera*), wood duck (*Aix sponsa*), American woodcock (*Scolopax minor*), marsh wren (*Cistothorus palustris*), red-winged blackbird (*Agelaius phoeniceus*), and swamp sparrow (*Melospiza georgiana*). Other species that have been reported at Piermont include American bittern (*Botaurus lentiginosus*) (SC), Virginia rail (*Rallus limicola*), sora rail (*Porzana carolina*), fish crow (*Corvus ossifragus*), and sedge wren (*Cistothorus platensis*) (T). Concentrations of herons, waterfowl, and shorebirds occur in the tidal flats and shallows during spring and fall migrations (March-April and September-November, respectively).

The uplands west of the marsh (Tallman Mountain State Park) are known roosting areas used by bald eagle (*Haliaeetus leucocephalus*) (T), Northern harrier (*Circus cyaneus*) (T), osprey (*Pandion haliaetus*) (SC), peregrine falcon (*Falco peregrinus*) (E) and sharp-shinned hawk (*Accipiter striatus*) (SC). These raptors use Piermont Marsh for foraging.

The diversity and abundance of fish and wildlife species at Piermont Marsh are unusual in the lower Hudson River. Opportunities for birdwatching, fishing, and informal nature study attract a substantial number of Rockland County residents to the area. The designation of Piermont Marsh as a component site of the Hudson River National Estuarine Research Reserve has focused research and education activities on this area.

## **IMPACT ASSESSMENT**

It is essential that any potential activities that would impact Piermont Marsh be consistent with the research and management program of the Hudson River National Estuarine Research Reserve 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, or alter tidal fluctuations in Piermont Marsh, would result in significant impairment of the habitat. Discharges of sewage, stormwater runoff, or industrial wastewater, could severely impair the quality of the habitat area. 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, nonpoint source runoff, and waste disposal.

Elimination of marsh, shallow areas, littoral zones, or mudflats associated with Sparkill Creek and Piermont Marsh, through the loss of tidal connection, excavation or filling would result in the direct loss of valuable fish and wildlife habitat. Of special concern are the potential effects of upstream disturbances, including water withdrawals, impoundments, streambed disturbances, discharges of agricultural or municipal runoff, or sewage discharges and associated contaminants. 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.

Existing adjacent vegetated areas should be protected, and where possible restored in order to maintain and/or improve water quality as well as provide cover, soil stabilization, perch sites and buffer zones. Land disturbances within the park may significantly affect the populations of many fish and wildlife that are enjoyed by visitors to the area.

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, expansions of common reed (*Phragmites australis*) have 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.

Management of public access may be necessary to ensure that the various human uses of fish and wildlife resources in the area are compatible; significant human encroachment into adjacent areas could adversely affect certain species of wildlife.

## 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**

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