

COASTAL FISH AND WILDLIFE RATING FORM

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Name of area: **Ramshorn Marsh**  
 Designated: **November 15, 1987**  
 Revised: **August 15, 2012**  
 County: **Greene**  
 Town(s): **Catskill**  
 7.5' Quadrangles: **Cementon, NY; Hudson South, NY**

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<u>Assessment Criteria</u>	<u>Score</u>
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**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>ER Assessment</b> – One of the largest tidal swamps in the Hudson Valley; a rare ecosystem type in New York State.	<b>64</b>
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**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>SV Assessment</b> – Bald eagle (T); wood turtle (SC) Additive Division: $25 + 16/2 = 33$	<b>33</b>
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**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>HU Assessment</b> – Recreational uses (birdwatching, waterfowl hunting and bass fishing).	<b>9</b>
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**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>PL Assessment</b> -- Concentrations of various fish and wildlife species in this habitat are unusual in the Hudson Valley ecological region.	<b>9</b>
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**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>R Assessment</b> – Irreplaceable	<b>1.2</b>
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<b>Habitat Index(ER+SV+HU+PL)= 115</b>	<b>Significance (HI X R)= 138</b>
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## LOCATION AND DESCRIPTION OF HABITAT

Ramshorn Marsh is located south of the Village of Catskill, extending along the western shore of the Hudson River for approximately three miles. The fish and wildlife habitat is located in the Town of Catskill, Greene County (7.5' Quadrangles: Cementon, N.Y.; and Hudson South, N.Y.). Ramshorn Marsh, encompassing approximately 1,300 acres, contains one of the largest tidal swamps on the Hudson River that exists in an essentially natural condition. Ramshorn Marsh is comprised of freshwater tidal swamp and marsh, mudflats, and open river and hosts a number of listed plants, including golden club (*Orontium aquaticum*) (T), (Northern estuary beggar ticks *Bidens hyperborea* var. *hyperborea*) (E), Southern estuary beggar ticks (*Bidens bidentoides*) (R) and swamp lousewort (*Pedicularis lanceolata*) (T). The National Audubon Society manages the northern portion of this marsh for use as a bird sanctuary.

This habitat is disturbed by the presence of invasive species including common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*) and water chestnut (*Trapa natans*).

## FISH AND WILDLIFE VALUES

Ramshorn Marsh is a major wetland and littoral area in the Hudson Valley region. It contains one of the largest forested tidal wetlands on the Hudson River, and exists in an essentially natural condition. Significant populations of American eel (*Anguilla rostrata*), American shad (*Alosa sapidissima*) smallmouth bass (*Micropterus dolomieu*), and largemouth bass (*Micropterus salmoides*) can be found in Ramshorn Marsh and Borget Creek. The area provides productive spawning and nursery habitat for these and a variety of other coastal migratory and resident species. The submerged aquatic vegetation, mainly water celery (*Vallisneria americana*), provides food for fish, invertebrates and waterfowl as well as refuge for fish and invertebrates.

Ramshorn Marsh is also habitat for wood turtle (*Clemmys insculpta*) (SC), water snake (*Nerodia s. sipedon*), red-spotted newt (*Notophthalmus v. viridescens*), redback salamander (*Plethodon cinereus*), American toad (*Bufo americanus*), gray treefrog (*Hyla vericolor*), spring peeper (*Pseudoacris crucifer*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*) and wood frog (*Rana sylvatica*). Common map turtles (*Graptemys geographica*) use the marsh shores for their habitat.

Ramshorn Marsh and the tidal mudflats that adjoin it provide vital resting and feeding habitat for large concentrations of waterfowl during the fall and spring migrations, and it is an important waterfowl wintering area (November-March) on the upper Hudson River estuary, especially for dabbling ducks.

Ramshorn Marsh supports a high level of human use. Both waterfowl hunters and birdwatchers use this wetland extensively during fall bird migrations. Recreational fishing for bass is also significant in the area.

## IMPACT ASSESSMENT

Any activity that would substantially degrade water quality, increase turbidity or sedimentation, reduce water levels, or alter tidal fluctuations in Ramshorn Marsh would result in significant impairment of the habitat. 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. Discharges or runoff of sewage effluent, pesticides, or other hazardous materials into the river could result in adverse impacts on the habitat area. Eutrophication caused by runoff from fertilizers, septic tanks, roads, and lawns is of considerable concern, as such over-enrichment

of waters may contribute to the establishment of invasive, non-native plants and concurrent displacement of the native flora.

Elimination of wetlands or significant human encroachment into the area, through dredging, filling or bulkheading would result in a direct loss of valuable fish and wildlife habitats. Clearing or dieback of the tidal wetland forest would result in the loss of an unusual habitat type in the Hudson Valley region. Such areas should be protected, and where possible restored to provide bank cover, stabilize soil, maintain or improve water quality and provide buffer areas from development. 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. Habitat disturbances would be most detrimental during bird nesting, and fish spawning and nursery periods, which generally extend from March through August for most warm water 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, changes in plant communities may affect marsh-nesting birds. 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.

The expansion of water chestnut (*Trapa natans*) and replacement of submerged aquatic vegetation may also result in changes in fish and invertebrate species composition in the areas occupied by this invasive plant. Activities that may result in expansion of water chestnut, or other invasive species, should be avoided.

Unrestricted use of motorized vessels, including personal watercraft, in shallow waters can have adverse effects on the benthic community, and on fish and wildlife populations through re-suspension of bottom sediments and through shoreline erosion which may reduce water clarity and increase sedimentation. Use of motorized vessels should be controlled (e.g., no wake zone, speed zones, zones of exclusion) in and adjacent to shallow waters and adjacent wetlands. Docks, piers, catwalks, or other structures may be detrimental to submerged aquatic vegetation beds through direct or indirect effects from shading, mooring chain and propeller scarring, and other associated human uses. In particular, the submerged aquatic vegetation beds are especially vulnerable to impacts that decrease light penetration into the water.

Where opportunities exist, appropriate restoration of intertidal and subtidal shallow habitats should be undertaken using the best available science and proper monitoring protocols. Restoration and enhancement efforts should be monitored, and the associated habitat effects should be reported and evaluated.

## **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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