

COASTAL FISH AND WILDLIFE RATING FORM

Name of area: **Shad and Schermerhorn Islands**

Designated: **November 15, 1987**

Date Revised: **August 15, 2012**

County: **Albany**

Town(s): **Bethlehem, Coeymans**

7.5' Quadrangles: **Delmar, NY; Ravena, NY**

<u>Assessment Criteria</u>	<u>Score</u>
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 – Large, undeveloped, floodplain area with important littoral zones and tributary streams; uncommon in the upper Hudson Valley, but rarity reduced by human disturbance. Geometric mean: $\sqrt{9} \times \sqrt{16} = 12$	12
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 – Peregrine falcon (E); Least bittern (T), American bittern (SC) Additive Division: $36 + 25/2 + 16/4 = 52.5$	52.5
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 – Recreational hunting and fishing in the area are important to residents of Albany County.	4
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 – Includes two significant spawning streams for anadromous fishes in Albany County, including one of the top 10 in the upper Hudson Valley subzone. Geometric Mean: $\sqrt{4} \times \sqrt{9} = 6$	6
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)= 74.5	Significance (HI x R)= 89.4

LOCATION AND DESCRIPTION OF HABITAT

Shad and Schermerhorn Islands are located approximately one and one-half miles east of the hamlet of Selkirk, on the western shore of the Hudson River, across from the Village of Castleton-on-Hudson. The fish and wildlife habitat is within the towns of Bethlehem and Coeymans, Albany County (7.5' Quadrangle: Delmar, N.Y.).

The fish and wildlife habitat area, covering approximately 1100 acres, is comprised of riverine littoral zones, submerged aquatic vegetation beds, freshwater wetlands, two sizeable tributary streams (the Binnen Kill and Vloman Kill), floodplain forest, cliffs, and active agricultural lands. The Vloman Kill is a medium gradient, warm water stream, with a gravelly substrate, and a drainage area of approximately 30 square miles. Substantial areas of shallow secondary channel habitat were filled with dredged material behind the historic islands connecting them to the mainland.

A number of listed plants are found in the wetland portion of this habitat: Hudson River water nymph (*Najas guadalupensis* ssp. *muenscheri*) (E), heartleaf plantain (*Plantago cordata*) (T), Davis' sedge (*Carex davisii*) (T), and Northern estuary beggar ticks (*Bidens hyperborea* var. *heperborea*) (E). The invasive plants purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*) and water chestnut (*Trapa natans*) are also present.

A sewage treatment plant is located along the south side of the Vloman Kill near its mouth.

FISH AND WILDLIFE VALUES

Shad and Schermerhorn Islands are significant because they comprise a relatively large, undeveloped, floodplain ecosystem on the Hudson River. Important littoral zone areas are located between the deepwater channel and the shoreline in addition to freshwater tidal wetlands and tidal mudflats. This type of habitat serves as a nursery area for young blueback herring (*Alosa aestivalis*), American shad (*Alosa sapidissima*), striped bass (*Morone saxatilis*) as well as spawning and feeding areas for resident freshwater species in the Hudson River, including white perch (*Morone americana*). The submerged aquatic vegetation provides food and refuge for fish and invertebrates, and adds dissolved oxygen to the water.

The Binnen Kill, which flows behind Shad Island and the wetlands between the historic Shad and Schermerhorn Islands also provide spawning and feeding habitat for American shad, blueback herring, alewife (*Alosa pseudoharengus*), and as well as resident freshwater species. Historically, the Vloman Kill has supported significant runs of these three river herring species and significant numbers of river herring have historically been present at the base of this tributary. Striped bass feed upon these herring. Smallmouth bass spawn here as well.

A variety of amphibians and reptiles include map turtles (*Graptemys geographica*), painted turtles (*Chrysemys picta*), mudpuppies (*Necturus maculosus*), American toads (*Bufo americanus*), bull frogs (*Rana catesbeiana*) and green frogs (*Rana clamitans*).

Terrestrial portions of the area provide quality habitat for a variety of upland wildlife species, including white-tailed deer, ruffed grouse, eastern cottontail, and many passerine bird species. The small wetland areas in and around Shad and Schermerhorn Islands support limited numbers of waterfowl and furbearing mammals. Least bittern (*Ixobrychus exilis*) (T), and American bittern (*Botaurus lentiginosus*) (SC) nest here. A naturally created sill area helps to keep the wetlands in this area flooded at all tidal stages.

Most of the land adjacent to Schermerhorn and Shad Islands is made up of large, privately owned estates. Therefore, access for public use is restricted from the landward side. However, the area is generally accessible by boat, along the Hudson River and in the lower end of the Vloman Kill. This provides access for fishing and waterfowl hunting, primarily by Albany County residents.

IMPACT ASSESSMENT

Any activities that would substantially degrade water quality, increase turbidity or temperature, or alter water depths in the littoral zones, wetlands, and streams making up this habitat would result in significant impairment of the habitat. Bulkheading, dredging, and deposition of dredged material would be especially detrimental in these areas. In particular, the submerged aquatic vegetation beds would be negatively impacted by changes in water depth in the littoral zone (through dredging and/or filling) as well as changes in water quality. Spills of oil or other hazardous substances are an especially significant threat to this area, because the biological activity of tidal flats is concentrated at the soil surface, much of which may be directly exposed to these pollutants.

Barriers to fish migration, whether physical or chemical, would have significant impacts on fish populations in the area. Disturbance of vegetation on the steep slopes along the western edge of the floodplain could result in soil erosion and sedimentation with subsequent impairment of fish habitats and reduction of wildlife value. Existing areas of natural vegetation bordering the Shad and Schermerhorn Islands and its tributaries should be maintained to provide bank cover, soil stabilization, and buffer areas. Habitat disturbances would be most detrimental during fish spawning and nursery periods, which generally extend from March through August for most fish species and during bird breeding season (late April-June).

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.

Where opportunities exist, appropriate restoration of intertidal and subtidal shallow habitats should be undertaken using the best available science and proper monitoring protocols, in particular, restoration of shallow intertidal secondary channels that formally divided Shad and Schermerhorn Island. Restoration and enhancement efforts should be monitored, and the associated habitat effects should be reported and evaluated.

Expansion of agricultural activities may also result in a direct loss of valuable habitat area, but could be managed to maintain or enhance certain wildlife species. Development of appropriate public access to the area may be desirable to allow compatible human uses of the fish and wildlife resources. Human use of the area should be conducted in a manner to avoid negative impacts.

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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