

COASTAL FISH AND WILDLIFE RATING FORM

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Name of area: **Vanderburgh Cove and Shallows**  
 Designated: **November 15, 1987**  
 Revised: **August 15, 2012**  
 County: **Dutchess**  
 Town(s): **Rhinebeck, Hyde Park**  
 7.5' Quadrangles: **Kingston East, NY; Hyde Park, 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> - Relatively large, sheltered, freshwater tidal coves and adjoining Hudson River shallows; unusual in Dutchess County.	<b>9</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> –Shortnose sturgeon (E)	<b>36</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> -- Waterfowl hunting attracts visitors from throughout Dutchess County and regionally	<b>9</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> -- A major waterfowl concentration area in Dutchess County.	<b>4</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) =58</b>	<b>Significance= (HI x R)= 69.6</b>

## LOCATION AND DESCRIPTION OF HABITAT

Vanderburgh Cove and Shallows is located on the east side of the Hudson River, approximately four miles south of the Village of Rhinebeck in the Towns of Rhinebeck and Hyde Park, Dutchess County (7.5' Quadrangles: Kingston East, N.Y.; and Hyde Park, N.Y.). Vanderburgh Cove is an approximately 100-acre shallow and tidal marsh, which is separated from the shallows in the Hudson River by an active railroad causeway. Also included in the habitat is Suckley Cove, a similar 30-acre area north of Vanderburgh Cove. The total habitat including the shallows and tidal marsh is approximately 580 acres.

The cove is hydrologically connected to the shallows in the river via two bridges in the railroad causeway, and contains dense beds of submerged aquatic vegetation including wild celery (*Vallisneria americana*) and Eurasian water milfoil (*Myriophyllum spicatum*), as well as the floating water chestnut (*Trapa natans*). Marsh areas contain emergent vegetation including pickerelweed (*Pontederia cordata*) and yellow pond lily (*Nuphar lutea*). Emergent marsh vegetation including river bulrush (*Scirpus fluviatilis*) and cattail (*Typha* spp.) are present only around the margin of Vanderburgh Cove and where two small tributaries, the Landsman Kill and Fallsburg Creek, empty into the area.

The approximately 400 acre shallow water area west of the railroad tracks includes submerged aquatic vegetation beds dominated primarily by wild celery (*Vallisneria americana*). The land area bordering Vanderburgh Cove and Shallows is predominantly deciduous forest on moderate to steep slopes including a portion of Ogden and Ruth Livingston Mills Memorial State Park and Wilderstien, a not-for-profit historic site and nature preserve.

Invasive species are present in the habitat including common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), Eurasian water milfoil (*Myriophyllum spicatum*), and water chestnut (*Trapa natans*).

## FISH AND WILDLIFE VALUES

Vanderburgh Cove and Shallows is one of the largest contiguous areas of shallow, freshwater, subtidal flats in Dutchess County. Areas such as this are valuable habitat for fish and wildlife. Vanderburgh Cove and Shallows represents one of the most southern occurrences of a large vegetated freshwater shallow in the Hudson River, which is a critical habitat for many fish species. The shallow submerged aquatic vegetation beds in the Vanderburgh Cove habitat provide spawning, nursery, and feeding habitats for coastal migratory and resident freshwater species such as striped bass (*Morone saxatilis*), American shad (*Alosa sapidissima*), white perch (*Morone americana*), largemouth bass (*Micropterus salmoides*), common carp (*Cyprinus carpio*), brown bullhead (*Ameiurus nebulosus*), yellow perch (*Perca flavescens*), and shiners. The Landsman Kill and Fallsburg Creek are also used by American eels (*Anguilla rostrata*) and spawning runs of smelt (*Osmerus mordax*), alewife (*Alosa pseudoharengus*), and blueback herring (*Alosa aestivalis*). Concentrations of spawning migratory fishes occur in the area generally between mid-March and August with substantial numbers of young-of-the-year fish remaining well into the fall (October-November). Vanderburgh Cove and Shallows serve as a feeding area for populations of shortnose sturgeon (*Acipenser brevirostrum*) (E).

Significant concentrations of waterfowl also occur in the Vanderburgh Cove and Shallows area. Dense growths of submergent vegetation provide valuable feeding areas for many species of ducks and are especially important during spring (March-April) and fall (mid-September-early December) migrations. Concentrations of diving ducks, such as greater and lesser scaups (*Aythya marila* and *Aythya affinis*), redhead (*Aythya americana*), canvasback (*Aythya valisineria*), common goldeneye (*Bucephala clangula*), and mergansers (*Mergus merganser*, *Mergus serrator*) are regularly found out in the flats. The shallow

cove areas are used by dabbling ducks, including mallard (*Anas platyrhynchos*), American black duck (*Anas rubripes*), wood duck (*Aix sponsa*), and blue-winged teal (*Anas discors*), especially during inclement weather. Waterfowl may remain in the area throughout winter.

In addition to supporting fish and birds, this area also provides 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 versicolor*), spring peeper (*Pseudacris crucifer*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*) and wood frog (*Rana sylvatica*).

The abundant fisheries resources in Vanderburgh Cove and Shallows provide valuable opportunities for recreational fishing and attract anglers from throughout the region. Fishing pressure is generally concentrated in the shallows. This habitat is also one of the most popular waterfowl hunting areas in Dutchess County.

## **IMPACT ASSESSMENT**

Any activity that would degrade water quality, increase turbidity, increase sedimentation, or alter flows, temperature, or water depths 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. Efforts should be made to improve water quality in the cove, including controlling discharges from wastewater treatment plant.

Any physical disturbance of the habitat, through dredging or filling (including dredge spoil disposal), would result in a direct loss of valuable habitat area. Construction of shoreline structures, such as docks, piers, bulkheads, or revetments, in areas not previously altered by human activity would result in the loss of productive areas which support the fish and wildlife resources of Vanderburgh Cove and Shallows. Construction of structures in areas previously altered may result in a direct loss of valuable habitat. Disruption of natural plant communities or benthos in the area could reduce its value as a fish and wildlife habitat.

Any activity that impacts tidal flows in the cove and shallows could significantly alter habitats for the fish and wildlife. Disturbance of wetlands, littoral zones, mudflats, or adjacent riparian habitat associated with Vanderburgh Cove, through the loss of tidal connection, excavation or filling would result in the direct loss of valuable habitat. Existing vegetated areas bordering Vanderburgh Cove should be maintained and where possible restored to provide bank cover, stabilize soil, perch sites, maintain or improve water quality and provide buffer areas from development. Habitat disturbances would be most detrimental during fish spawning and incubation periods, which generally extend from April-August for most species.

Thermal discharges, depending on time of year, could have adverse effects on use of the area by migratory and resident species. Entrainment and impingement causes significant mortality to all life stages of fish, including endangered species. Activities that would enhance migratory, spawning, or nursery fish habitat, particularly where an area is essential to a species' life cycle or helps to restore an historic species population would be beneficial.

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 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 resuspension 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.

Maintenance 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 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, 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

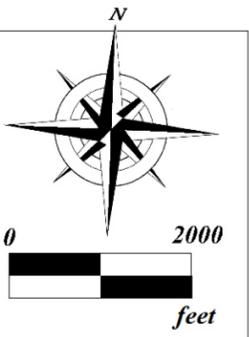
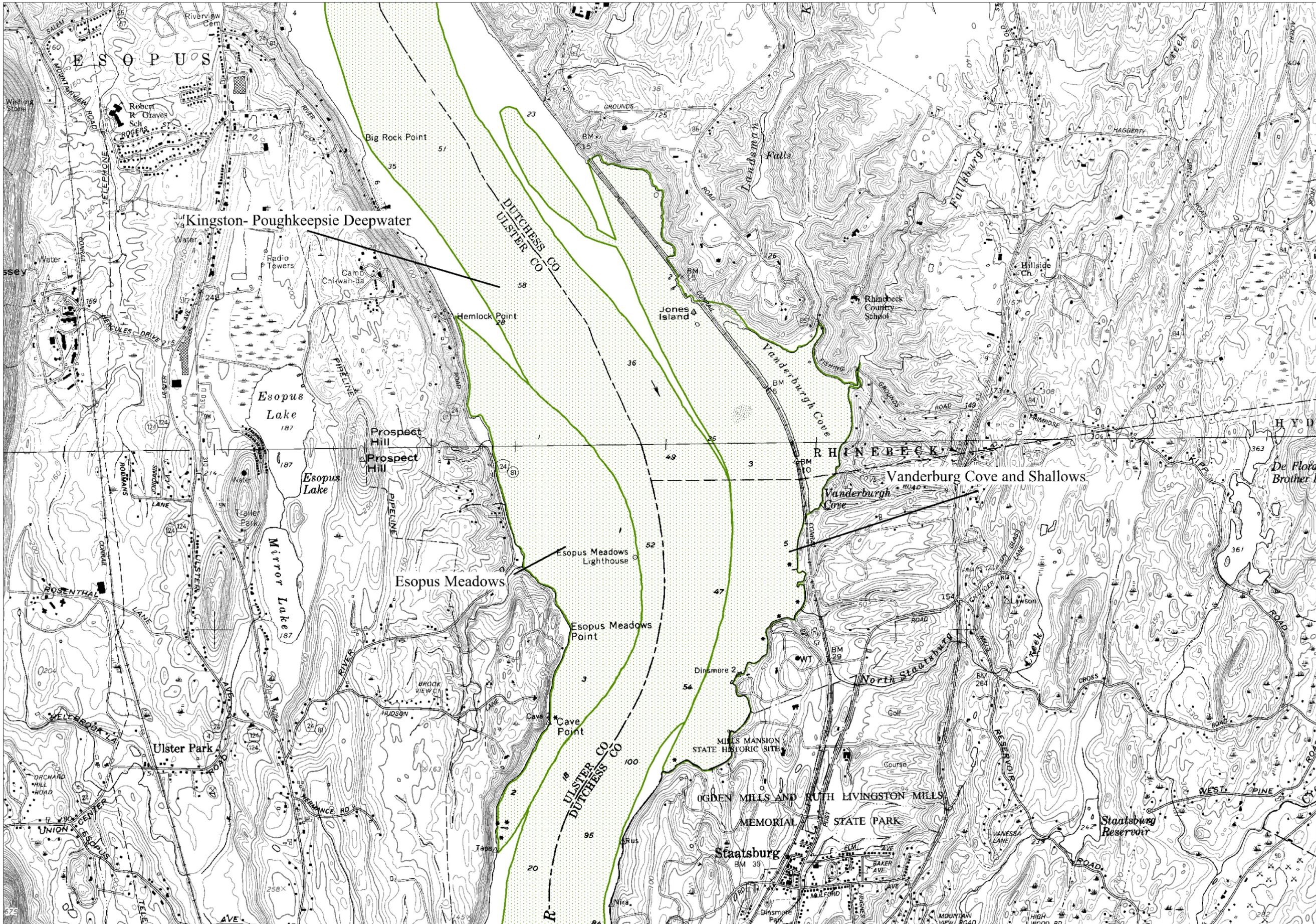
Hudson River National Estuarine Research Reserve  
Norrie Point Environmental Center  
PO Box 315  
Staatsburg, NY 12580  
Phone: (845) 889.4745

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



**Significant Coastal Fish and Wildlife Habitats**

- Vanderburgh Cove and Shallows
- Esopus Meadows
- Kingston - Poughkeepsie Deepwater (In Part)

