

# APPENDIX C – SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

## NORMAN KILL SCFWH

### COASTAL FISH AND WILDLIFE RATING FORM

Name of area: **Normans Kill**  
 Designated: **November 15, 1987**  
 Date Revised: **August 15, 2012**  
 County: **Albany**  
 Town(s): **Bethlehem, Albany**  
 7 1/2' Quadrangles: **Albany, NY; Delmar, NY**

<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> -- One of the major freshwater tributaries of the upper Hudson River, which is accessible to anadromous fishes and contains freshwater tidal wetland areas.	<b>16</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> – No endangered, threatened or special concern species have been found in the area.	<b>0</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> -- Recreational fishing opportunities attract many Albany County anglers to the area.	<b>4</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> -- Significant spawning habitat for migratory fishes in the upper Hudson River. 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) = 26</b>	<b>Significance (HI x R) = 31.2</b>

## **LOCATION AND DESCRIPTION OF HABITAT**

The Normans Kill is located on the west side of the Hudson River, on the boundary between the City of Albany and the Town of Bethlehem, Albany County (7.5' Quadrangles: Albany, N.Y.; and Delmar, N.Y.).

The fish and wildlife habitat is an approximate two-mile segment of this freshwater tributary, extending from its mouth on the Hudson River to a falls which is located just downstream from the New York State Thruway (Interstate Route 87) bridge. The Normans Kill is a relatively large, medium gradient, perennial, warmwater stream, with a drainage area of over 170 square miles, and an average annual discharge volume of approximately 150 cubic feet per second. The first mile of stream below the falls flows through a steep-sided wooded gorge, and is relatively shallow, with a gravelly substrate. The lower mile of the creek (referred to as "Island Creek") is within the tidal range of the Hudson River, and is relatively deep, with a silt and clay substrate. At least part of this segment was channelized in the past and its mouth relocated south in conjunction with nearby commercial and industrial developments. Despite its proximity to the Port of Albany, the Normans Kill and its associated riparian zone remain in a relatively natural condition.

Several wetland areas are found along the creek in addition to a floodplain forest in the southeast portion of the habitat. Submerged aquatic vegetation beds, mainly water celery (*Vallisneria americana*), are found around the mouth of the creek.

Habitat disturbance in the area can be attributed to the presence of road and railroad crossings, litter, discharges of stormwater runoff from paved areas, and stream channel alterations.

## **FISH AND WILDLIFE VALUES**

The Normans Kill is the largest tributary stream in Albany County, and is one of about 4 major tributaries emptying into the northern portion of the Hudson River estuary. The length of stream channel accessible to migratory fishes and the lack of significant human disturbance in the upper portion of the creek provide favorable habitat conditions in the Normans Kill for a variety of coastal migratory as well as resident freshwater fish species. The Normans Kill is an important spawning area for a number of fishes: alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*) and white perch (*Morone americana*). Generally, these species enter the stream between April and June; the adults leave the area shortly after spawning, and within several weeks, the eggs have hatched, and larval fish begin moving downstream to nursery areas in the Hudson River. A substantial population of smallmouth bass (*Micropterus dolomieu*) also occurs in the Normans Kill throughout the year. Adults move into the upper section of the creek in May and early June to spawn, and return to deeper areas as water temperatures rise. American eels also make use of this creek. The submerged aquatic vegetation provides food and refuge for fish and invertebrates.

Freshwater inflows from the Normans Kill are also important for maintaining water quality in the Hudson River estuary. The freshwater wetlands within this area contribute to primary productivity and improved quality of water that flows into the Hudson River.

The abundant fisheries resources of the Normans Kill provide significant opportunities for recreational fishing. Although no developed public access facilities exist, the area is popular among Albany County anglers, especially for smallmouth bass fishing during the summer months. Fishing pressure is concentrated on the lower section of the creek, near road crossings.

## IMPACT ASSESSMENT

Any activities that would degrade water quality, increase turbidity, increase sedimentation, or alter flows, temperature, or water depths in the Normans Kill or its tributaries would result in significant impairment of the habitat. Discharges or runoff of sewage effluent and hazardous materials, water withdrawals, and the creation of impoundments would result in significant impairment of the habitat. Discharges of stormwater runoff, pesticides and other effluents could result in significant impairment of the habitat. Of particular concern are the potential effects of upstream disturbances, including water withdrawals, impoundments, streambed disturbances, and effluent discharges.

Substantial alteration of the stream channel, such as impoundments or creation of barriers to fish passage should be prohibited. Impediments to movement and migration of aquatic species, whether physical or chemical (e.g., dams, dikes, channelization, bulkheading, filling), should be prohibited. Plans to reduce or eliminate the impacts of existing hydrological modifications should be developed, including improvements to fish passage, and/or the removal of obstructions or barriers. Enhancement efforts should be monitored, and the associated habitat effects should be reported and evaluated. Habitat disturbances would be most detrimental during bird nesting, and fish spawning and nursery periods, which generally extend from March through August for most species.

Elimination or disturbance of adjacent wetland and forested habitats would adversely affect the habitat. Such areas should be protected to maintain bank cover, soil stabilization, and buffer areas. Where possible such areas should be restored in order to maintain and/or improve water quality.

Where opportunities exist, appropriate restoration of intertidal and subtidal shallow habitats should be undertaken using the best available science and proper monitoring protocols.

## 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:

- destroy the habitat; or,
- 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 include but are 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**

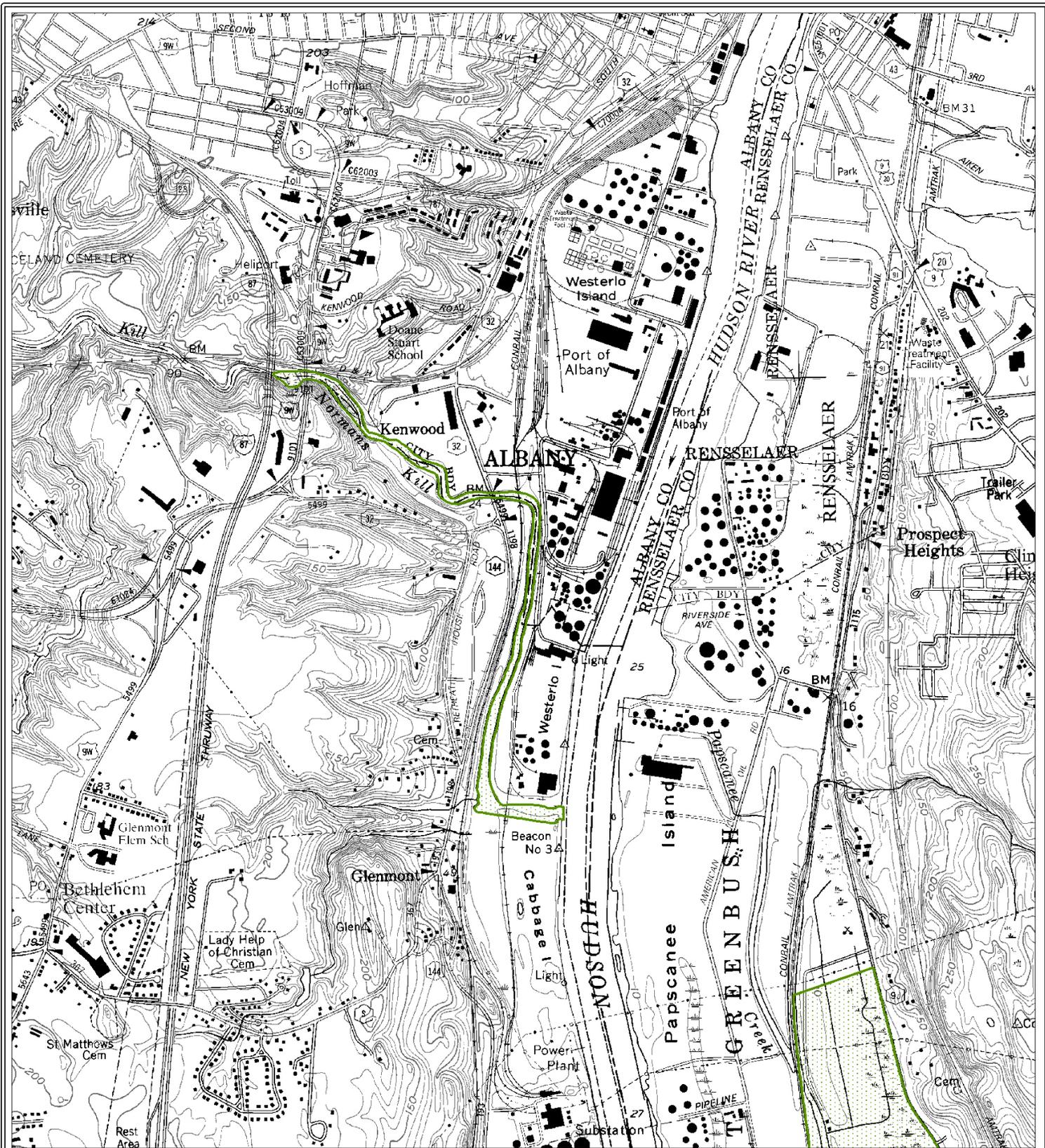
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## Significant Coastal Fish and Wildlife Habitats



- Normans Kill
- Papscaee Marsh & Creek (In Part)



## SHAD AND SCHERMERHORN ISLANDS SCFWH

### 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>
<p><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></p> <p><b>ER Assessment</b> – 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: <math>\sqrt{9} \times \sqrt{16} = 12</math></p>	<b>12</b>
<p><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></p> <p><b>SV Assessment</b> – Peregrine falcon (E); Least bittern (T), American bittern (SC) Additive Division: <math>36 + 25/2 + 16/4 = 52.5</math></p>	<b>52.5</b>
<p><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></p> <p><b>HU Assessment</b> – Recreational hunting and fishing in the area are important to residents of Albany County.</p>	<b>4</b>
<p><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></p> <p><b>PL Assessment</b> – 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: <math>\sqrt{4} \times \sqrt{9} = 6</math></p>	<b>6</b>
<p><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></p> <p><b>R Assessment</b> – Irreplaceable</p>	<b>1.2</b>
<p><b>Habitat Index (ER+SC+HU+PL) = 74.5</b></p>	<p><b>Significance (HI x R) = 89.4</b></p>

## 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**

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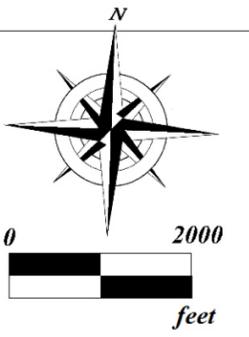
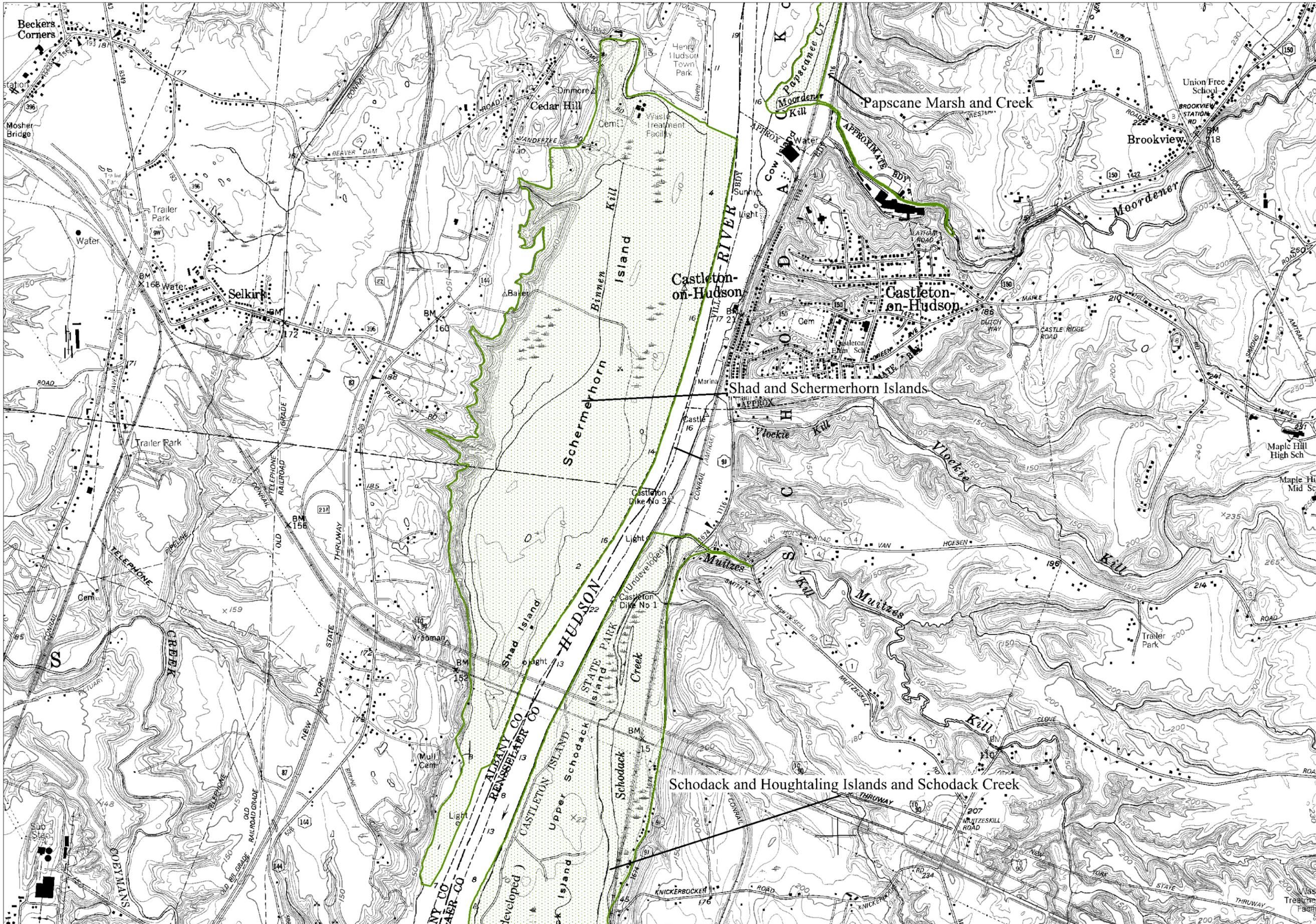
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**Significant Coastal Fish and Wildlife Habitats**

- Shad and Schermerhorn Islands
- Papscaen Marsh & Creek (In Part)
- Schodack and Houtaling Islands
- and Schodack Creek (In Part)

