

COASTAL FISH AND WILDLIFE ASSESSMENT FORM

Name of area: **Coxsackie Island Backwater**  
 Designated: **November 15, 1987**  
 Revised: **August 15, 2012**  
 County: **Greene**  
 Town(s): **Coxsackie, New Baltimore**  
 7.5' Quadrangles: **Hudson North, NY; Ravena, 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> – Includes a rare secondary channel, unusual in the Hudson Valley ecological region, as well as a vegetated backwater area behind Rattlesnake Island; rare freshwater tidal wetlands are also present	<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> – No endangered, threatened or special concern species of fish and wildlife are found here.	<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> – Bass populations in the area contribute to a recreational fishery of statewide significance.	<b>16</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> – An important wintering area for largemouth and smallmouth bass; one of five in the Hudson River estuary.	<b>16</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)= 57</b>	<b>Significance Value(HI x R) = 68.4</b>

## LOCATION AND HABITAT DESCRIPTION

Coxsackie Island Backwater is located along the western shore of the Hudson River in the Towns of Coxsackie and New Baltimore, Greene County (7.5' Quadrangles: Ravena, N.Y.; and Hudson North, N.Y.).

The fish and wildlife habitat, which is approximately 173 acres, is a relatively shallow side channel of the Hudson, separated from the main river channel by Coxsackie Island and Rattlesnake Island. A stone dike that connects the west shore of the Hudson to the northern end of Rattlesnake Island reduces current velocities in the area behind Rattlesnake Island. The area behind the Coxsackie Island is open to the main channel on both ends and therefore is exposed to greater current velocities. Water depths at mean low water are generally less than 10 feet, though down to 22 feet in one area. There is an abundance of underwater shelter in the area provided by sunken barge hulls. The area is roughly 2 miles long, encompassing a vegetated backwater with a silty bottom, tidal freshwater wetlands, shallows, mudflats and abundant submerged aquatic vegetation, primarily water celery (*Vallisneria americana*). Extensive water chestnut (*Trapa natans*) is present in the shallow side channel behind Rattlesnake Island. Coxsackie Island Backwater is under jurisdiction of the New York State Office of General Services.

In addition to the submerged aquatic vegetation beds, this habitat hosts the following rare and threatened plant species: Southern estuary beggar ticks (*Bidens bidentoides*) (R), heartleaf plantain (*Plantago cordata*) (T), spongy arrowhead (*Sagittaria calycina* var. *spongiosa*) (T) and smooth bur-marigold (*Bidens laevis*) (T).

## FISH AND WILDLIFE VALUES

Coxsackie Island Backwater is one of a few relatively large areas of vegetated secondary channels in the Hudson Valley ecological region. Secondary channels were systematically filled with dredge spoils between the City of Hudson and Albany during construction of the federal navigation channel in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, reducing their total area by approximately 70%. The Coxsackie Island backwaters is one of a few remaining habitats of this type. The important role of secondary channels as spawning and juvenile fish habitat makes them vital to maintaining biodiversity and productivity in the river. The productivity of Coxsackie Island Backwater contributes substantially to the diversity of fisheries in the region. Secondary channels offer refuge from the high energy flow regimes and human use impacts associated with the river's main channel. Moderate flows, extensive vegetated shallows, increase water quality and abundant production, provide refuge and forage opportunities for a wide array of resident and migratory species.

Extensive littoral zones in this habitat are productive spawning and nursery areas for many resident freshwater fish species, such as brown bullhead (*Ameiurus nebulosus*), yellow perch (*Perca flavescens*), largemouth bass (*Micropterus salmoides*), pikes, pickerels and carp. This area is also productive spawning and nursery habitat for many coastal migratory species including American shad (*Alosa sapidissima*), blueback herring (*Alosa aestivalis*) and American eel (*Anguilla rostrata*). The tidal portions of the habitat, to the west of Rattlesnake and Coxsackie Islands are significant wintering sites for adult largemouth (*M. salmoides*) and smallmouth (*M. dolomieu*) bass.

Coxsackie Island Backwater is also habitat for map turtle (*Graptemys geographica*), spring peeper (*Pseudacris crucifer*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*) and wood frog (*Rana sylvatica*).

Bald eagle (*Haliaeetus leucocephalus*) have been observed foraging in the vicinity of the habitat area and Rattlesnake Island.

This area attracts anglers from throughout New York State and beyond.

## **IMPACT ASSESSMENT**

Any activity that would substantially degrade water quality, increase turbidity, increase sedimentation, or alter 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 pollution, and waste disposal. Spills of oil or other hazardous substances are a potentially serious threat to fish populations in Coxsackie Island Backwater and efforts should be made to prevent such contamination.

Any physical alteration of the habitat, through dredging, filling, or bulkheading, would result in a direct loss of valuable habitat area and ecosystem function. Alteration of hydrologic patterns in Coxsackie Island Backwater (e.g., through installation of breakwalls or jetties) could also have impacts on fish populations using the area and should be avoided. Habitat disturbances may be detrimental during any season because of the year-round fisheries use of this area. However, disturbances would be most detrimental during fish spawning and incubation periods, which generally extend from April through August for most species.

Elimination or disturbance of adjacent wetlands, forested habitats, and vegetated upland buffer zones would adversely affect the habitat. Such areas should be protected, and where possible restored to provide bank cover, soil stabilization, maintain or improve water quality and provide buffer areas. Installation and operation of water intakes could have significant impacts on fish concentrations, through impingement of juveniles and adults, or entrainment of eggs and larval stages.

The presence of invasive species and the expansion of its range within the secondary channel may result in changes in native plant, vertebrate and invertebrate species composition and abundance. Effective control of invasive plant species, through a variety of means, may improve fish and wildlife species use of the area. Effective control of water chestnut may be desirable or necessary to maintain natural plant communities or benthos in the area. This may be accomplished by increasing the flow behind Rattlesnake Island through partial or complete removal of the dike on the northern end of the island. Implementation of such actions should be pursued only if the best available scientific research demonstrates that it will benefit native resident and migratory species.

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) 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 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, in particular, restoration of shallow intertidal secondary channel that formally divided Rattlesnake Island from the mainland. Restoration and enhancement efforts should be monitored, and the associated habitat effects should be reported and evaluated.

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

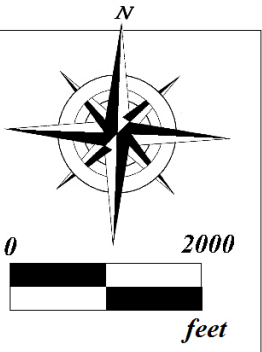
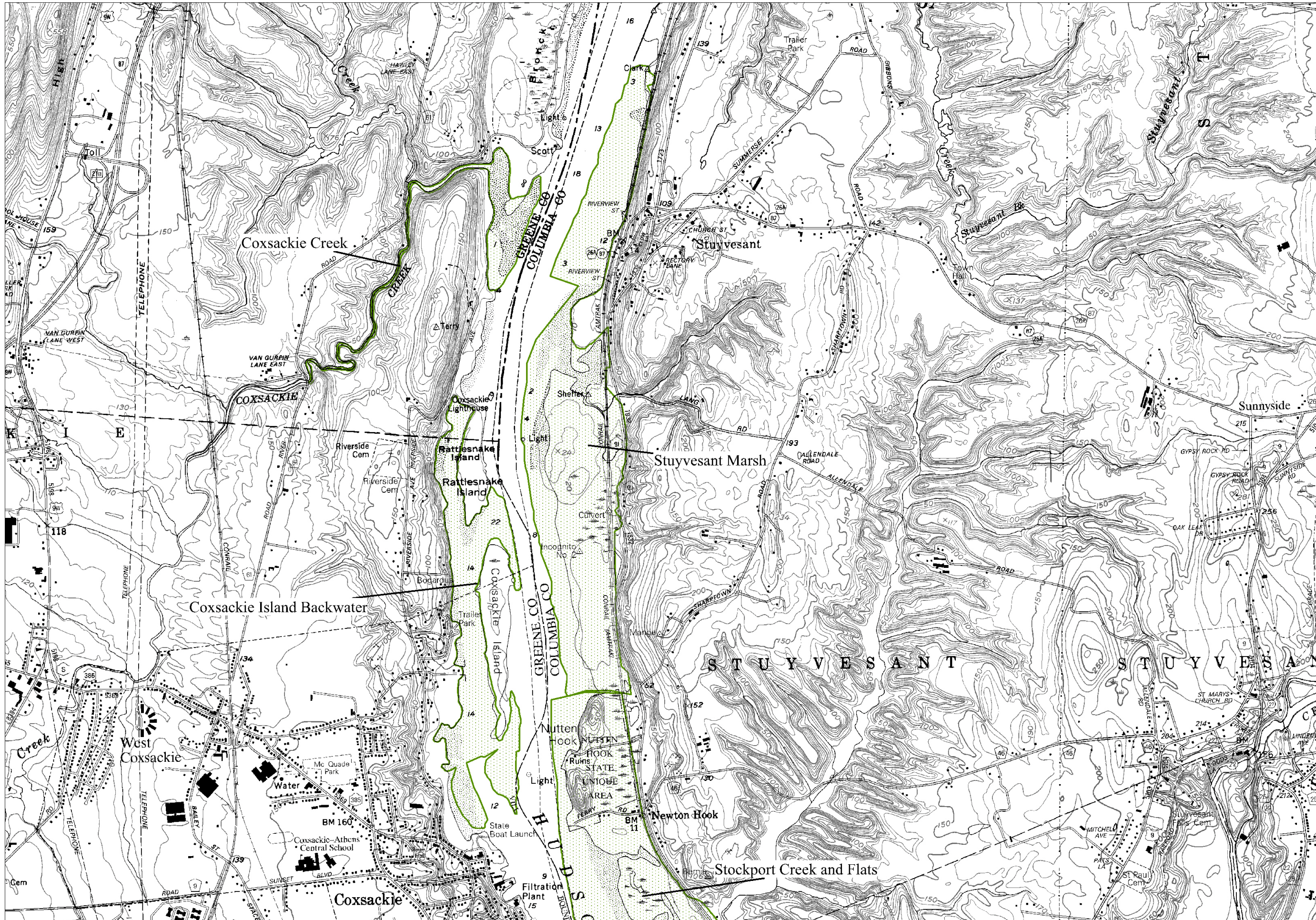
Hudson River National Estuarine Research Reserve  
Norrie Point Environmental Center  
PO Box 315  
Staatsburg, NY 12580  
Phone: (845) 889.4745

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





### Significant Coastal Fish and Wildlife Habitats

- Cossackie Island Backwater
- Cossackie Creek
- Stuyvesant Marsh
- Stockport Creek and Flats (In Part)

