

COASTAL FISH AND WILDLIFE ASSESSMENT FORM

Name of area: **Coxsackie Creek**
 Designated: **November 15, 1987**
 Revised: **August 15, 2012**
 County: **Greene**
 Town(s): **New Baltimore**
 7.5' Quadrangles: **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 – A sizeable and relatively undisturbed freshwater tributary of the upper Hudson River; rare in the ecological subzone; also contains ecological communities that are rare in New York State: freshwater tidal marsh and freshwater tidal swamp. Geometric mean: $\sqrt{25} \times \sqrt{64} = 40$	40
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 – There are no endangered, threatened or special concern fish and wildlife species in this habitat.	0
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 fishing and bird watching for county residents as well as educational use.	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 – Significant spawning and nursery stream for anadromous fishes in the upper Hudson River. 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+SV+HU+PL)= 50	Significance Value (HI x R)= 60

LOCATION AND HABITAT DESCRIPTION

Coxsackie Creek is located on the west side of the Hudson River, approximately two miles north of the Village of Coxsackie, in the Town of New Baltimore, Greene County (7.5' Quadrangle: Ravena, N.Y.). The fish and wildlife habitat is an approximate one and one-half mile segment of this freshwater tributary, extending from its mouth on the Hudson River to where it passes under County Route 61.

Coxsackie Creek is a medium gradient, perennial, warm water stream, approximately 10-20 feet wide, with a gravel and rock substrate. The first mile of stream below County Route 61 flows through a relatively undisturbed area of deciduous forest. The lower half-mile of the creek is an undeveloped, sheltered, tidal cove, dominated by mudflats. The northern end of this area was filled with dredged material during the mid-1950s and 60s. Freshwater inflows from Coxsackie Creek are important for maintaining water quality in the Hudson River estuary. The habitat includes a 10-acre freshwater tidal marsh.

This habitat also hosts a number of threatened and rare plants: smooth bur-marigold (*Bidens laevis*) (T), spongy arrowhead (*Sagittaria calycina* var. *spongiosa*) (T), Davis' sedge (*Carex davisii*) (T), Southern estuary beggar ticks (*Bidens bidentoides*) (T), heartleaf plantain (*Plantago cordata*) (T) and tidal spikerush (*Eleocharus aestuum*) (R/U). In addition, the habitat contains beds of submerged aquatic vegetation, mainly water celery (*Vallisneria americana*).

Current habitat disturbances in Coxsackie Creek are generally limited to the presence of road crossings, litter, discharges of runoff from upstream agricultural areas and invasive species, including but not limited to, purple loosestrife (*Lythrum salicaria*).

FISH AND WILDLIFE VALUES

The considerable length of stream channel accessible to coastal migratory and resident fishes, the sheltered nature of the tidal cove and the lack of significant human disturbance in the upper portion of the creek are important factors contributing to the value of Coxsackie Creek. Coxsackie Creek offers significant spawning and nursery habitat for anadromous and resident fishes in the upper Hudson River, including alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), smallmouth bass (*Micropterus dolomieu*), redbreast sunfish (*Lepomis auritus*) and white perch (*Morone americana*), American eel (*Anguilla rostrata*) also reside in this creek. In addition, shallow subtidal areas at the mouth of Coxsackie Creek serve as spawning sites for American shad (*Alosa sapidissima*), which concentrate in such areas between mid-April and June. Migratory fish may move upstream as far as the Village of Coxsackie, but the extent to which this occurs is not well documented. The submerged aquatic vegetation beds in this habitat provide food for fish, invertebrates and waterfowl as well as refuge for fish and invertebrates.

Coxsackie Creek area is also habitat for map turtle (*Graptemys geographica*), painted turtle (*Chrysemys picta*), Eastern American toad (*Bufo americanus*), gray tree frog (*Hyla versicolor*), spring peeper (*Pseudacris crucifer*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*) and wood frog (*Rana sylvatica*).

IMPACT ASSESSMENT

Any activity that would substantially degrade water quality, increase turbidity, increase sedimentation, or alter flows, temperature, or water depths would significantly impair 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 (including vessel wastes). Of particular concern are the potential effects of upstream disturbances, including water withdrawals, impoundments, streambed disturbances or discharges of agricultural runoff. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides and/or insecticides) could result in adverse impacts on the habitat area.

Any physical alteration of the habitat, through dredging, filling, or bulkheading, would result in a direct loss of valuable habitat area. Substantial alteration of the stream channel, such as impoundment or creation of barrier to fish passage (whether physical or chemical) should be prohibited. In addition, bulkheading or other shoreline modifications could indirectly result in loss of intertidal and subtidal habitats by scouring habitats, and/or precluding the gradual natural upslope migration of these habitats as sea level rises. Alteration of tidal patterns in Cocksackie Creek would have negative impacts on the biotic communities present.

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 Cocksackie Creek. Construction of structures in areas previously altered may result in a direct loss of valuable habitat. Docks, piers, catwalks, or other structures may be detrimental to submerged aquatic vegetation beds through direct or indirect effects from shading, and other associated human uses. 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.

Elimination or disturbance of adjacent wetland and forested habitats would adversely affect the habitat. 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. 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.

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 created the Bronck Island backwater should be considered. Restoration and enhancement efforts should be monitored, and the associated habitat effects should be reported and evaluated.

The presence of invasive species and the expansion of its range within the marsh 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. Application of herbicides or insecticides along or within the marsh may result in adverse impacts on various fish and wildlife species and should be prohibited. However, limited and monitored application of herbicides or pesticides to control invasive species may be beneficial in maintaining habitat for native fish and wildlife species.

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

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

