

COASTAL FISH AND WILDLIFE RATING FORM

Name of area: **Catskill Creek**
 Designated: **November 15, 1987**
 Revised: **August 15, 2012**
 County: **Greene**
 Town(s): **Catskill**
 7.5' Quadrangles: **Cementon, NY; Hudson South, 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 – Significant spawning stream for anadromous fishes in the Hudson River. Geometric mean: $\sqrt{25} \times \sqrt{16}$	20
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 – No endangered, threatened or special concern species reside 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 attracts residents from throughout New York State and neighboring states. Geometric mean: $\sqrt{25} \times \sqrt{16} = 20$	20
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 streams for concentrations of anadromous fishes in the Hudson River. One of the few tributaries where rainbow smelt have been historically reported. The tidal portion of the creek is a wintering site for adult largemouth and smallmouth bass.	16
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
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Habitat Index (ER+SV+HU+PL)= 56	Significance (HI x R)= 67.2

LOCATION AND DESCRIPTION OF HABITAT

Catskill Creek is located on the west side of the Hudson River, in the Village of Catskill, in the Town of Catskill, Greene County (7.5' Quadrangles: Cementon, N.Y.; and Hudson South, N.Y.). The fish and wildlife habitat is an approximate five-mile segment of this freshwater tributary, extending from its mouth on the Hudson River to a falls that is located just downstream from the N.Y.S. Route 23 bridge. Also included is an approximate three-fourths mile segment of Kaaterskill Creek up to the first impassable barrier to fish that is a natural falls downstream of Cauterskill Road. The habitat encompasses approximately 156 acres.

These tributaries are relatively large, medium to high gradient, perennial, coldwater streams with a combined drainage area of over 270 square miles. The lower one and one-half miles of Catskill 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 may have been channelized in the past in conjunction with adjacent commercial and industrial developments. Above this reach the creeks flow through steep-sided wooded gorges that are relatively shallow with rocky substrates. These upstream segments remain in a relatively natural condition.

Beds of submerged aquatic vegetation found at the creek mouth and in Catskill Creek up to the Kaaterskill Creek, are dominated by water celery (*Vallisneria americana*). Freshwater tidal marsh, intertidal mudflats and freshwater tidal swamp are also found in this habitat. A number of threatened and endangered plant species can be found in wetland areas including smooth bur-marigold (*Bidens laevis*) (T), golden club (*Orontium aquaticum*) (T), Northern estuary beggar ticks (*Bidens hyperborea* var. *hyperborea*) (E) and Southern estuary beggar ticks (*Bidens bidentoides*) (R).

Habitat disturbances in the Catskill Creek area include the presence of road and railroad crossings, discharges of wastewater from adjacent commercial developments, maintenance of boat docking facilities, and invasive species including common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*) and water chestnut (*Trapa natans*).

FISH AND WILDLIFE VALUES

Catskill Creek and Marsh provide a diversity of microhabitats for coastal migratory and resident fishes. The upper portion of Catskill Creek is a coldwater stream with whitewater areas. The considerable length of stream channel and the lack of significant human disturbance in the upper portion of the creek provide favorable habitat conditions for a variety of migratory as well as resident freshwater fish species. Catskill Creek is an important spawning and nursery area for alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), white perch (*Morone americana*), sea lamprey (*Petromyzon marinus*) (at the confluence of Catskill Creek and Kaaterskill), American shad (*Alosa sapidissima*) and striped bass (*Morone saxatilis*) in the lower channel area. Generally, these species enter the stream between April and August; 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. Historically, rainbow smelt (*Osmerus mordax*) (R) have been found in Catskill Creek.

The tidal portion of the Catskill Creek is a wintering site for adult largemouth (*Micropterus salmoides*) and smallmouth (*Micropterus dolomieu*) bass. Adult smallmouth bass 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 eel (*Anguilla rostrata*) are also present. The submerged aquatic vegetation beds dominated by water celery (*Vallisneria americana*) at the mouth of the creek provide food and shelter for a number of fish and invertebrate species.

Catskill Creek area is also habitat for northern water snake (*Nerodia s. sipedon*), red-spotted newt (*Notophthalmus v. viridescens*), redback salamander (*Plethodon cinereus*), common mudpuppy (*Necturus maculosus*), Eastern American toad (*Bufo americanus*), gray treefrog (*Hyla versicolor*), spring peeper (*Pseudacris crucifer*), American bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*) and wood frog (*Rana sylvatica*). Wood turtle (*Glyptemys insculpta*) (SC) has been observed in the area but additional information on the importance of the ecosystem to the species is needed, prior to inclusion in the Species Vulnerability ranking.

Freshwater inflows from Catskill Creek are also important for maintaining water quality in the Hudson River estuary. The abundant fisheries resources of Catskill Creek provide significant opportunities for recreational fishing. Bass fishing in Catskill Creek is of major significance, attracting anglers from throughout New York and surrounding states. National bass fishing tournaments have been held on Catskill Creek. In addition, river herring congregations at the mouth of the creek contribute to a commercially important fishery in the Hudson River that extends approximately two miles north and south in the main stem river.

Birdwatching and nature study in the Catskill Creek gorge is also popular among local residents, since this area provides a "greenbelt" for wildlife within the Village of Catskill. Catskill Creek provides foraging and roosting habitat for bald eagles and other raptors, and feeding habitat for wading birds, diving ducks and other waterfowl, as well as field and forest dwellers which also make use of the habitat.

IMPACT ASSESSMENT

Any activity that would substantially degrade water quality, increase turbidity or sedimentation, alter flows, temperature or water depths in Catskill Creek or Kaaterskill Creek would result in significant impairment of the habitat. Degradation of water quality in the Creek, or to its water sources, from chemical contamination (including food chain effects from bioaccumulation), oil spill, excessive turbidity or sediment loading, nonpoint source runoff, and waste disposal may result in adverse impacts on the fish and wildlife of the Hudson River and the Catskill Creek. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides and/or insecticides) may result in adverse impacts on the habitat area. Of particular concern are the potential effects of upstream disturbances, including water withdrawals, impoundments, stream bed disturbances and effluent discharges.

Any physical alteration of the habitat, through dredging, filling, or bulkheading, could result in a direct loss of valuable habitat area. Substantial alteration of the stream channel, such as impoundment or creation of barriers to fish passage should be prohibited. Plans to reduce or eliminate the impacts of existing hydrological modifications within the creek should be developed, including improvements to fish passage, and/or the removal of obstructions or barriers. Construction of shoreline structures, such as docks, piers, bulkheads, or revetments, in areas not previously altered by human activity could result in the loss of productive areas which support the fish and wildlife resources of Catskill 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, mooring chain scarring, and other associated human uses. 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.

Elimination or disturbance of adjacent riparian habitats could adversely affect the habitat. Existing woodlands and riparian areas bordering Catskill Creek and its tributaries should be protected, and

where possible restored to provide bank cover, stabilize soil, maintain or improve water quality and provide buffer areas from development.

Alteration to existing railroad causeways and bridges could affect the hydrology and extent of shoreline habitat areas. Any construction related to these structures should utilize the best available science and technology to reduce and avoid negative impacts to the habitat area.

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. 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:

- 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, 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

