

COASTAL FISH AND WILDLIFE RATING FORM

---

Name of area: **Rondout Creek**  
 Designated: **November 15, 1987**  
 Revised: **August 15, 2012**  
 County: **Ulster**  
 Town(s): **Esopus, Kingston, Ulster**  
 7.5' Quadrangles: **Kingston East, NY; Kingston West, 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> - A major freshwater tributary of the Hudson River that is accessible to migratory fishes, but rarity reduced by human disturbance. Geometric mean: $\sqrt{16 \times 25} = 20$	<b>20</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> – Bald eagle (T), least bittern (T), osprey (SC), and American bittern (SC). Additive Division: $25 + 25/2 + 16/4 + 16/8 = 43.5$	<b>43.5</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 and boating opportunities attract visitors from throughout the Hudson Valley.	<b>25</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> -- Concentrations of various coastal migratory and resident freshwater fish and waterfowl species in this area are unusual in Ulster County. The creek portion of the area is wintering habitat for adult largemouth and smallmouth bass - one of five known sites in the Hudson River estuary.	<b>9</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)= 97.5</b>	<b>Significance (HI x R)= 117</b>

## LOCATION AND DESCRIPTION OF HABITAT

Rondout Creek is located on the west side of the Hudson River, on the boundary between the City of Kingston and the Towns of Esopus and Ulster, Ulster County (7.5' Quadrangles: Kingston East, N.Y.; and Kingston West, N.Y.).

The fish and wildlife habitat, encompassing approximately 520 acres, is an approximate four-mile segment of this freshwater tributary, extending from its mouth on the Hudson River to a dam located just upstream from the N.Y.S. Route 213 bridge at Eddyville. Rondout Creek is a large, medium gradient, perennial, warmwater stream with a drainage area of over 1,100 square miles and an average annual discharge volume of approximately 1,600 cubic feet per second. Municipal water withdrawals upstream may reduce flows year-round by as much as 200 cubic feet per second. All of the habitat is within the tidal range of the Hudson River, and is relatively deep, with a silt and clay substrate, with a portion of the habitat consisting of flats, tidal wetlands, and shallows, especially behind the undeveloped Gumaer Island. The lower one to two miles of Rondout Creek has been channelized to facilitate barge traffic to adjacent commercial and industrial developments in Kingston. An extensive marsh and mudflat area locally known as Sleightsburg Marsh occurs at the mouth of the creek along with submerged aquatic vegetation beds, mainly water celery (*Vallisneria americana*).

Several threatened, endangered and rare plants also grow in this habitat: Frank's sedge (*Carex frankii*) (E), heartleaf plantain (*Plantago cordata*) (T), smooth bur-marigold (*Bidens laevis*) (T), spongy arrowhead (*Sagittaria calycina* var. *spongiosa*) (T), swamp cottonwood (*Populus heterophila*) (T), winged monkey flower (*Mimulus alatus*) (R) and Southern estuary ticks (*Bidens bidentoides*) (R).

Portions of Rondout Creek and its associated riparian zone remain in a relatively natural condition, but habitat disturbances in the area include dredging and discharges of wastewater from industrial and municipal point sources. The dam at Eddyville alters flows and is a barrier to migratory fish movement. Invasive species are present including common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*) and water chestnut (*Trapa natans*). Marinas and other boating facilities (i.e., fuel docks, boat ramps, and moorings) occupy almost ten percent of the Rondout Creek's total shoreline.

## FISH AND WILDLIFE VALUES

Despite considerable human disturbance, the Rondout Creek has historically supported large concentrations of coastal migratory and resident freshwater fish species. The creek is an important spawning area for alewife (*Alosa pseudoharengus*), rainbow smelt (*Osmerus mordax*), blueback herring (*Alosa aestivalis*), white perch (*Morone americana*), yellow perch (*Perca flavescens*), tomcod (*Microgadus tomcod*), and striped bass (*Morone saxatilis*). Generally, these species enter the stream between March 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. An exception is tomcod, which spawn in the area in December and January. American shad (*Alosa sapidissima*) spawn in shallow water areas at the mouth of Rondout Creek. Substantial populations of brown bullhead (*Ameiurus nebulosus*), yellow perch (*Perca flavescens*), American eel (*Anguilla rostrata*), smallmouth bass (*Micropterus dolomieu*) and largemouth bass (*Micropterus salmoides*) occur in the creek throughout the year. The deepwater area near the mouth of the Rondout Creek is one of five known important overwintering areas for largemouth and smallmouth bass. In shallow areas, the submerged aquatic vegetation, mainly water celery (*Vallisneria americana*), provides food for fish, invertebrates and waterfowl as well as refuge for fish and invertebrates.

The banks of Rondout Creek provide habitat for common snapping turtles (*Chelydra serpentina*) and common map turtles (*Graptemys geographica*), and the entire area supports habitat for water snake

(*Nerodia s. sipedon*), red-spotted newt (*Notophthalmus v. viridescens*), redback salamander (*Plethodon cinereus*), common mudpuppy (*Necturus maculosus*), American toad (*Bufo americanus*), gray treefrog (*Hyla versicolor*), spring peeper (*Pseudacris crucifer*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*), and woodfrog (*Rana sylvatica*).

Wetlands located at the mouth of Rondout Creek are productive feeding areas for a variety of waterfowl species during spring (March-April) and fall (mid-September-early December) migrations. In addition to providing habitat for fish and waterfowl, this habitat also supports shorebirds, wading birds and songbirds. In particular, the American bittern (*Botaurus lentiginosus*) (SC), and least bittern (*Lixobrychus exilis*) (T) make use of Sleightsburg Marsh. Bald eagles (*Haliaeetus leucocephalus*) (T) have been observed fishing in the river around Sleightsburg Marsh.

Although landfilling and waste disposal have eliminated some of the wetland area north of Rondout Creek, sizeable marshes and flats still remain. During spring migration, ospreys (*Pandion haliaetus*) (SC) congregate at the mouth of Rondout Creek where clear water and shallows offer prime foraging conditions.

Freshwater inflows from Rondout Creek are very important for maintaining water quality in the Hudson River estuary. The abundant fisheries resources and public access to the Rondout Creek provide significant opportunities for recreational fishing. The area is popular among anglers from throughout the mid Hudson Valley, especially in spring (March-April) for herring and bullhead fishing, and in summer for largemouth and smallmouth bass fishing. Concentrations of waterfowl in this area attract hunters from throughout the mid Hudson Valley. The area is also frequently used by kayakers and canoeists.

## **IMPACT ASSESSMENT**

Any activities that would substantially degrade water quality, increase turbidity or sedimentation, alter flows, temperature, or water depths in the Rondout Creek would result in a 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. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants may result in adverse impacts on the habitat area. Eutrophication caused by runoff from fertilizers, septic tanks, roads, and lawns is of considerable concern; as such over-enrichment of waters may contribute to the establishment of invasive, non-native plants and concurrent displacement of the native flora.

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. Impediments to movement and migration of aquatic species, whether physical or chemical (e.g., dams, dikes, channelization, bulkheading and sedimentation), 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. Habitat disturbances would be most detrimental during bird nesting, and fish spawning and nursery periods, which generally extend from April through August for most warm water species.

Redevelopment of hydroelectric facilities on the creek should only be allowed with run-of-river operations. Entrainment or impingement from installation and operation of water intakes could have significant impact on juvenile and/or adult fish concentrations.

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.

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.

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 re-suspension 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.

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.

## **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

