

COASTAL FISH AND WILDLIFE ASSESSMENT FORM

---

Name of area: **Croton River and Bay**  
 Designated: **November 15, 1987**  
 Revised: **August 15, 2012**  
 County: **Westchester**  
 Town(s): **Cortland; Ossining**  
 7.5' Quadrangles: **Haverstraw, NY; Ossining, 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 tributary and sheltered bay of the lower Hudson River. The largest submerged aquatic vegetation bed in Haverstraw Bay occurs at the mouth of Croton River. Freshwater tidal wetlands are also found along the bay.	<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> – Short-eared owl (E), bald eagle (T), northern harrier (T) Additive Division: $36 + 25/2 + 25/4 = 54.75$	<b>54.75</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> -- A popular recreational fishing area; recognized for striped bass fishing opportunities in the lower Hudson River.	<b>9</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 concentration of bald eagles; locally significant concentrations of waterfowl and songbirds. Geometric Mean: $\sqrt{4} \times \sqrt{16} = 8$	<b>8</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>
<hr/>	
<b>Habitat Index (ER+SV+HU+PL)= 87.75</b>	<b>Significance( HI x R)= 105.3</b>

## LOCATION AND DESCRIPTION OF HABITAT

Croton River and Bay is located on the east side of the Hudson River, in the Villages of Croton-on-Hudson and Ossining, in the Towns of Cortlandt and Ossining, Westchester County (7.5' Quadrangles: Haverstraw, N.Y.; and Ossining, N.Y.). The fish and wildlife habitat, encompassing 1,200 acres includes an approximate one-mile segment of the river (within tidal reach of the Hudson) and a shallow bay, tidal marsh, swamp and mudflat area south of Croton Point.

The Croton River is a relatively large, warmwater stream with a drainage area of over 375 square miles and an average annual discharge volume in excess of 500 cubic feet per second. The bay contains extensive beds of submerged aquatic vegetation (SAV), mainly water celery (*Vallisneria americana*).

In addition to flow diversions, Croton River and Bay have been subject to considerable habitat disturbance, including filling of wetlands for development, waste disposal, discharges of stormwater runoff, and the presence of road and railroad crossings, and invasive species.

## FISH AND WILDLIFE VALUES

Despite significant habitat alterations affecting the area, tidal portions of Croton River and Bay remain important as fish and wildlife habitats in the lower Hudson Valley. Croton River and Bay comprise a large shallow bay area in the lower river that is sheltered from strong river currents and, to some extent, from prevailing winds. Consequently, the area provides favorable habitat conditions for a variety of coastal migratory and resident warmwater fish species.

Croton River and Bay is a productive year-round habitat for resident fish species, such as bluegill (*Lepomis macrochirus*), brown bullhead (*Ameiurus nebulosus*), channel catfish (*Ictalurus punctatus*), common carp (*Cyprinus carpio*), largemouth bass (*Micropterus salmoides*), pumpkinseed (*Lepomis gibbosus*), smallmouth bass (*Micropterus dolomieu*), white catfish (*Ameiurus catus*) and other panfish, and serves as a resting, foraging, and nursery area for migratory species, including American eel (*Anguilla rostrata*), and alewife (*Alosa pseudoharengus*). Atlantic sturgeon (*Acipenser oxyrinchus*) (E) and shortnose sturgeon (*Acipenser brevirostrum*) (E) also utilize the adjacent deepwater habitats. Hudson River submerged aquatic vegetation beds provide food for fish, invertebrates and waterfowl as well as refuge for fish and invertebrates.

These fish populations may provide prey for osprey (*Pandion haliaetus*) (SC) during migration. Locally significant numbers of waterfowl may also occur in the area during spring (March - April) and fall (September - November) migrations. Henslow's sparrow (*Ammodramus henslowii*), short-eared owl (*Asio flammeus*), and vesper sparrow (*Pooecetes gramineus*) (T) use this area as overwintering habitat. Bobolink (*Dolichonyx oryzivorus*), and grasshopper sparrow (*Ammodramus savannarum*) (SC), also use this habitat, as well as year round resident, northern harriers (*Circus cyaneus*) (T).

As a result of its abundant fisheries resources, Croton River and Bay is very popular for recreational fishing for striped bass in the Hudson River.

## IMPACT ASSESSMENT

Any activity that would degrade water quality, increase turbidity, increase sedimentation, or alter flows, temperature, or water depths would result in significant impairment of the habitat. Any physical alteration of the habitat, through dredging, filling, or bulkheading would result in a direct loss of

valuable habitat area. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants may result in significant adverse impacts on the habitat area. 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. Of special concern in this major tributary system are the potential effects of upstream disturbances, including water withdrawals, impoundments, stream bed 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 and 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. Existing areas of natural vegetation bordering Croton River and Bay should be maintained to provide bank cover, soil stabilization, perching sites, and buffer areas. 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.

Thermal discharges, depending on time of year, could have adverse effects on use of the area by migratory and resident species. Activities that result in the presence of significant electric, magnetic, or electromagnetic fields may affect benthic communities, migratory fish movement, and fish egg and larval development. Entrainment and impingement causes significant mortality to all life stages of fish, including endangered species. Activities that would enhance migratory, spawning, or nursery fish habitat, particularly where an area is essential to a species' life cycle or helps to restore an historic species population would be beneficial.

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, 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.

Development of additional public access to the area may be desirable to ensure that adequate opportunities for compatible human uses of the fisheries resources are available, and should be conducted in a manner to avoid and minimize 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, 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

