

COASTAL FISH AND WILDLIFE ASSEMENT FORM

Name of area: **Fishkill Creek**
 Designated: **November 15, 1987**
 Revised: **August 15, 2012**
 County: **Dutchess**
 Town(s): **Fishkill, Beacon**
 7.5' Quadrangles: **West Point, 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 major freshwater tributary of the lower Hudson River containing a diversity of estuarine habitats. The habitat also includes a relatively large, wooded peninsula that extends into the Hudson River.	16
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 – Osprey (SC), bald eagle (T) Additive Division: $25 + 25/2 = 37.5$	37.5
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 -- The western shore of Denning’s Point is a popular recreational fishing site for striped bass; part of the Hudson Highlands State Park.	9
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 -- Concentrations of osprey during migration are unusual in the lower Hudson Valley; concentrations of coastal migratory and resident fishes are unusual in Dutchess County. Geometric Mean: $\sqrt{9} \times \sqrt{4} = 6$	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)= 68.5	Significance(HI x R)= 82.2

LOCATION AND DESCRIPTION OF HABITAT

Fishkill Creek is located on the east side of the Hudson River, in the City of Beacon and the Town of Fishkill, Dutchess County (7.5' Quadrangle: West Point, N.Y.). The fish and wildlife habitat is an approximate one-half mile segment of this relatively large, perennial, warmwater stream, extending from its mouth on the Hudson River to the first dam upstream. A short section of Creek below the dam flows over a steep, rocky rapids. However, most of the habitat is within the tidal range of the Hudson River and contains extensive areas of mudflats, emergent marsh, and submerged aquatic vegetation beds. The habitat includes a shallow bay area located at the creek mouth (west of the Metro-North railroad tracks) and undeveloped portions of Denning's Point, a wooded sand peninsula that shelters the area. With the exception of some remnants of past industrial activities the land area bordering Fishkill Creek and Denning's Point remains relatively undisturbed.

Three rare plant species occur in the estuarine portion of Fishkill Creek: smooth bur-marigold (*Bidens laevis*) (T), Davis sedge (*Carex davisii*), and Southern estuary beggar ticks (*Bidens bidentoides*) (R).

Habitat disturbance in the area is generally limited to the presence of road and railroad crossings, upstream water uses, potential effects of industrial and landfill operations located just north of the area and invasion by water chestnut (*Trapa natans*), common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*).

FISH AND WILDLIFE VALUES

The diversity of natural ecological communities in the Fishkill Creek habitat provides favorable conditions for a variety of fish and wildlife species. Fishkill Creek is an important spawning area for coastal migratory fishes such as alewife (*Alosa pseudoharengus*), American eel (*Anguilla rostrata*), blueback herring (*Alosa aestivalis*), white perch (*Morone americana*), Atlantic tomcod (*Microgadus tomcod*) and striped bass (*Morone saxatilis*). Generally, these species enter the stream between April 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 shallows near the creek mouth and other nursery areas in the Hudson River. An exception is Atlantic tomcod, which spawn in the area in December and January.

American shad (*Alosa sapidissima*) are found in Denning Point Bay at the mouth of the creek. Atlantic sturgeon (*Acipenser oxyrinchus*) (E) and shortnose sturgeon (*Acipenser brevirostrum*) (E) utilize the adjacent deepwater habitat. A substantial warmwater fish community also occurs in Fishkill Creek throughout the year. Resident species include largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), bluegill (*Lepomis macrochirus*), brown bullhead (*Ameiurus nebulosus*) and goldfish (*Carassius auratus*). Other species found in the Hudson River that most likely use Denning Point Bay and the mouth of the creek include: channel catfish (*Ictalurus punctatus*), common carp (*Cyprinus carpio*), golden shiner (*Notemigonus crysoleucas*), spottail shiner (*Notropis hudsonius*), white catfish (*Ameiurus catus*), and yellow perch (*Perca flavescens*). Fishkill Creek occasionally supports marine fishes such as bluefish (*Pomatomus saltatrix*), anchovy (*Anchoa sp.*), silversides (*Menidia menidia*), and hogchoker (*Trinectes maculatus*). The submerged aquatic vegetation within the bay provides food and refuge for fish, invertebrates and waterfowl.

In addition to supporting fish, this area provides habitat for painted turtle (*Chrysemys picta*), water snake (*Nerodia s. sipedon*), red-spotted newt (*Notophthalmus v. viridescens*), redback salamander (*Plethodon*

cinereus), American toad (*Bufo americanus*), gray treefrog (*Hyla versicolor*), spring peeper (*Pseudacris crucifer*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*) and wood frog (*Rana sylvatica*).

Fishkill Creek is reported to be a major crossing point for raptors migrating through the Hudson Valley along the northern slope of the Hudson Highlands. Concentrations of osprey (SC) have been observed regularly at Fishkill Creek during spring migration. In addition, resident and migratory bald eagles (*Haliaeetus leucocephalus*) (T) use this the Fishkill Creek and vicinity for foraging throughout the entire year.

The abundant fisheries resources of Fishkill Creek and the Hudson River provide significant opportunities for recreational fishing.

IMPACT ASSESSMENT

Any activities that would degrade water quality, increase turbidity, increase sedimentation, or alter flows, temperature, or water depths in the Fishkill Creek or its tributaries would result in significant impairment of the habitat. Discharges or runoff or sewage effluent, pesticides, or other hazardous materials (including fertilizers, herbicides and/or insecticides) may result in significant impairment of the habitat. 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, would result in a direct loss of valuable habitat area. Substantial alteration of the creek 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, filling), would have significant impacts on fish populations in the creek as well as in the Hudson River. 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.

Elimination of wetlands or significant encroachment into the area, through dredging or filling, would result in a direct loss of valuable fish and wildlife habitats. Existing areas of natural vegetation bordering Fishkill Creek should be maintained to provide bank cover, soil stabilization, nesting and perching sites, and buffer areas, to reduce nonpoint source pollution and sedimentation from upland sources.

Nesting birds inhabiting Denning's Point are highly vulnerable to disturbance by humans from April 15 through August 15. Open water areas at the mouths of major tributary streams are important feeding areas for migrating osprey.

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.

The expansion of water chestnut (*Trapa natans*) and replacement of submerged aquatic vegetation may also result in changes in fish and invertebrate species composition in the areas occupied by this invasive plant. Activities that may result in expansion of water chestnut should be avoided.

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. Human disturbance around Denning Point should be minimized during migration periods. It is also recommended that rare plant species occurring in Fishkill Creek be protected from adverse effects of human activities.

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

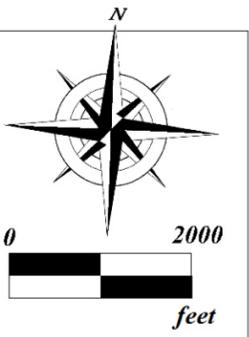
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Significant Coastal Fish and Wildlife Habitats

- Fishkill Creek
- Hudson Highlands (In Part)

