Name of area: The Flats
Designated: November 15, 1987
Revised: August 15, 2012
County: Ulster, Dutchess
Town(s): Ulster, Kingston, Red Hook, and Rhinebeck
7.5' Quadrangles: Kingston East, NY

Assessment Criteria

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 - An extensive area of shallow, vegetated freshwater, intertidal and subtidal flats; rare in New York State.  
Score: 64

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 – Shortnose sturgeon (E) occur in the area  
Score: 36

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 anglers from throughout the Hudson Valley region  
Score: 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 -- A major shad spawning areas in the Hudson River. High concentrations of waterfowl are also found here.  
Score: 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  
Score: 1.2

Habitat Index (ER+SV+HU+PL)= 125
Significance (HI x R)= 150
LOCATION AND DESCRIPTION OF HABITAT

The Flats is located in the middle of the Hudson River, roughly between Astor Point in the Town of Red Hook in Dutchess County and the City of Kingston, Ulster County (7.5' Quadrangle: Kingston East, N.Y.).

The Flats is an approximately 1,400 acre area including 580 acres of contiguous shallow, freshwater, tidal flats and 820 acres of undisturbed deepwater channel habitat. The fish and wildlife habitat includes an approximate four and one-half mile long shallow underwater shoal (less than 10 feet deep at mean low water) that includes freshwater intertidal mud flats and submerged aquatic vegetation beds. The extensive submerged aquatic vegetation beds are predominantly water celery (Vallisneria americana). The habitat also includes a moderately deep natural undisturbed channel to the east of the flats. The Flats is bordered to the west by the Hudson River federal navigation channel, a potential source of habitat disturbance from periodic maintenance dredging.

FISH AND WILDLIFE VALUES

The Flats is a primary Hudson River spawning grounds for American shad (Alosa sapidissima) between mid-March and June. Adult shad concentrate between Kingston and Coxsackie, and spawning occurs primarily on the extensive flats, shoals, and sandbars that occur mid-river, as well as the shallow areas near the mouths of tributary creeks. These fish may move into adjacent deeper areas depending on tidal currents. Reproduction by American shad (Alosa sapidissima) in the Flats area once supported one of the largest commercial gillnet fisheries for this species on the Atlantic Coast. However, drastic declines in shad stock have lead to the closure of commercial and recreational shad fishing. Currently, the Flats is an important area because it provides spawning habitat for the recovering American shad stock. The Flats also serves as spawning, nursery, and feeding habitat for striped bass (Morone saxatilis), white perch (Morone americana), and various resident freshwater species. Concentrations of the early developmental stages of several migratory species occur in this area.

Shortnose sturgeon (Acipenser brevirostrum) (E) may also use the area to feed (especially during slack water in late spring and summer), to rest during river-wide movements or to maintain body temperature when water temperatures are warmer than in adjacent deeper waters (i.e., in early spring and fall). High concentrations of shortnose sturgeon (E) occur in channels adjoining The Flats, particularly on the east side. Atlantic sturgeon (Acipenser oxyrhynchus) (E) utilize the adjacent deepwater habitats.

Significant concentrations of waterfowl also occur in The Flats area. Dense growths of wild celery (Vallisneria americana) provide valuable feeding areas for many species of ducks, and are especially important during spring (March-April) and fall (mid-September - early December) migrations when concentrations of diving ducks such as scaups (Aythya marila and Aythya affinis), common goldeneye (Bucephala clangula) and mergansers (Lophodytes cullatus; Mergus merganser) are regularly found in The Flats. During calm weather this open river area is also used by dabbling ducks, including mallard (Anas platyrhynchos), American black duck (Anas rubripes) and blue-winged teal (Anas discors).

The abundant fisheries and waterfowl resources in this area provide excellent outdoor recreational opportunities, attracting anglers and hunters through the region.
**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. All species may be adversely 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. Continued efforts should be made to improve water quality in the Hudson River, which is primarily dependent upon controlling discharges from combined sewer overflows, industrial point sources, and commercial and recreational vessels. Oil and other hazardous substance spills are an especially significant threat to this area, because the biological activity of tidal flats is concentrated at the soil surface, much of which may be directly exposed to these pollutants.

Disruption of plant communities or benthos in the area through dredging or filling (including dredge spoil disposal), would reduce its value as fish and wildlife habitat; no new navigation channels should be constructed through the area. Dredging to maintain adjacent shipping channels to the west of The Flats should be scheduled August 1 through October 15 to minimize adverse effects on aquatic organisms; unregulated dredged material placement in this area would be detrimental to the habitat. 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 by migratory and resident species. Shad spawning activities and survival are directly affected by water temperature. 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.

**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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