

COASTAL FISH AND WILDLIFE RATING FORM

Name of area: **Catskill Deepwater**
 Designated: **August 15, 2012**
 County: **Greene, Columbia**
 Town(s): **Catskill, Greenport, Livingston, Germantown**
 7.5' Quadrangles: **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 – An extensive area of deep, freshwater, estuarine habitat; rare in New York State; but somewhat common in the Hudson River. Geometric mean $\sqrt{64} \times \sqrt{25} = 40$	40
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 – Atlantic sturgeon (E) spawning area.	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 – Supports recreational fishing for striped bass.	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 sturgeon and other estuarine species are unusual in New York State.	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
Habitat Index (ER+SV+HU+PL)= 101	Significance (HI x R)= 121.2

LOCATION AND DESCRIPTION OF HABITAT

Catskill Deepwater Habitat encompasses an approximately 4 mile stretch of the Hudson River extending from Rogers Island in Greene County and Columbia County to just south of the Roeliff - Jansen Kill in the Town of Germantown in Columbia County. The area is located in the Town of Catskill in Greene County and the Towns of Greenport, Livingston, and Germantown in Columbia County (7.5' Quadrangle: Hudson South, N.Y.). The significant habitat area is a nearly continuous deepwater section of the river ranging in water depth from 30 to 50 feet or greater.

FISH AND WILDLIFE VALUES

The Catskill Deepwater Habitat is the northernmost extensive section of deepwater habitat in the Hudson River. Deepwater estuaries such as this are rare in the eastern United States and the Hudson River is the only river in New York State that contains this ecosystem type. Deepwater areas may provide wintering habitat for juvenile and adult shortnose sturgeon (E) as well as spawning habitat for adult Atlantic sturgeon (E) and support a diversity of resident and coastal migratory species in the Hudson River. The Catskill Deepwater Habitat is probably the northernmost spawning location of Atlantic sturgeon (E) in the Hudson River. The Catskill Deepwater Habitat is also important spawning area for American shad (*Alosa sapidissima*) and striped bass (*Morone saxatilis*). The habitat is also used by alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), white perch (*Morone americana*), Atlantic sturgeon (*Acipenser oxyrinchus*) (C-Fed), and a variety of resident freshwater species.

Catskill Deepwater is a critical habitat for most estuarine-dependent fisheries originating from the Hudson River. This area contributes directly to the production of in-river and ocean populations of food, game, and forage fish species. Consequently, commercial and recreational fisheries throughout the North Atlantic benefit from these biological inputs from the Hudson River estuary.

IMPACT ASSESSMENT

Any activity that would substantially degrade water quality, increase turbidity or sedimentation, alter flows, freshwater to saline distribution, temperature, reduce water depths, degrade or alter benthic communities in Catskill Deepwater would result in 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 (including vessel wastes). Discharges or runoff of sewage effluent, pesticides, or other hazardous materials into the river may result in adverse impacts on the habitat area.

Any physical alteration of the habitat through dredging or filling (including dredge spoil disposal, would result in a direct loss of valuable habitat. Such activities could have significant impacts during spawning, incubation periods (May-July, primarily) and overwintering times. No new navigation channels should be created in the area. Dredging to maintain existing adjacent federal navigation channel should be scheduled in between September 1 and February 28 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 fish spawning and nursery periods, which generally extend from March through August for most warm water species.

Thermal impacts 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 field 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.

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

