

COASTAL FISH AND WILDLIFE RATING FORM

Name of area: **Haverstraw Bay**
 Designated: **November 15, 1987**
 Revised: **August 15, 2012**
 County: **Rockland; Westchester**
 Town(s): **Clarkstown, Haverstraw, Stony Point, Cortland**
 7.5' Quadrangles: **Haverstraw, NY; NOAA Chart No. 12343**

<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 shallow estuarine habitat, rare in the lower Hudson River and in New York State	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), bald eagle (T), common loon (SC), Atlantic sturgeon (E) Additive Division: $36 + 36/2 + 25/4 + 16/8 = 62.25$	62.25
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 area contributes to recreational and commercial fisheries throughout the northeastern U.S.	36
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 spawning, nursery, and wintering area for various estuarine fish species; population levels unusual in the northeastern U.S.	25
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)= 187.25	Significance (HI x R)= 224.7

LOCATION AND DESCRIPTION OF HABITAT

The Haverstraw Bay Significant Coastal Fish and Wildlife Habitat area extends approximately six miles on the Hudson River, from Stony Point to Croton Point, in the Towns of Stony Point, Haverstraw, and Clarkstown, in Rockland County, and the Town of Cortlandt, in Westchester County (7.5' Quadrangle: Haverstraw, N.Y.; NOAA Chart No. 12343).

The fish and wildlife habitat, approximately 8,700 acres, encompasses the entire river over this approximate six-mile reach, which is the widest section of the Hudson River estuary. Haverstraw Bay has extensive shallow areas (less than 15 feet deep at mean low water) that deepen to a navigation channel (which is dredged to maintain a depth of about 35 feet) in the western half of the area. During much of the year, this area is the place where freshwater from the upper river mixes with salt water from the Atlantic Ocean to produce a predominantly brackish water habitat with salinities varying from 0-10 ppt. Several submerged aquatic vegetation beds, dominated by water celery (*Vallisneria americana*), are found here.

Habitat disturbances, such as dredging, shoreline filling and bulkheading, waste disposal, and pollution from upland and in-river sources, have all been significant at some time during the recent history of this area. The land area surrounding Haverstraw Bay supports a variety of land uses, including industrial, commercial, recreational and residential developments, although much undeveloped forestland also remains.

FISH AND WILDLIFE VALUES

The regular occurrence of brackish water over extensive areas of shallow bottom in Haverstraw Bay creates highly favorable conditions for biological productivity within the estuary. The habitat contains diverse communities of submergent aquatic vegetation, phytoplankton and zooplankton, aquatic invertebrates and many fish species.

Although the location of the salt front varies annually (and seasonally), Haverstraw Bay regularly comprises a substantial part of the nursery area for striped bass (*Morone saxatilis*), American shad (*Alosa sapidissima*), white perch (*Morone americana*), Atlantic tomcod (*Microgadus tomcod*), and Atlantic sturgeon (*Acipenser oxyrinchus*) (E). Other anadromous species, such as blueback herring (*Alosa aestivalis*) and alewife (*Alosa pseudoharengus*), spawn in upstream freshwater areas, but move south and concentrate in this area before leaving the river in the fall.

The submerged aquatic vegetation provides food for fish, invertebrates and waterfowl as well as refuge for fish and invertebrates. Haverstraw Bay is a major nursery and feeding area for certain marine species, most notably bay anchovy (*Anchoa mitchilli*), Atlantic menhaden (*Brevoortia tyrannus*) and Atlantic blue crab (*Callinectes sapidus*). Depending on location of the salt front, a majority of the spawning and wintering populations of Atlantic sturgeon (*Acipenser oxyrinchus*) (C-Fed) in the Hudson may reside in Haverstraw Bay. Shortnose sturgeon (*Acipenser brevirostrum*) (E) usually winter in this area as well. Atlantic tomcod (*Microgadus tomcod*), bluefish (*Pomatomus saltatrix*), fourspine stickleback (*Apeltes quadracus*), Hogchoker (*Trinectes maculatus*), killifish (*Fundulus spp.*), rainbow smelt (*Osmerus mordax*)(R), silversides (*Menidia menidia*), summer flounder (*Paralichthys dentatus*), threespine stickleback (*Gasterosteus aculeatus*), white perch (*Morone americana*), common carp (*Cyprinus carpio*), American eel (*Anguilla rostrata*) and white catfish (*Ameiurus catus*) are also found in this area.

Significant numbers of waterfowl may occur in Haverstraw Bay during spring (March-April) and fall (September-November) migrations.

Bald eagles (*Haliaeetus leucocephalus*) (T) overwinter in northern Haverstraw Bay and along Croton Point, the latter being a place where common loons (*Gavia immer*) (SC) also overwinter. Harbor seals (*Phoca vitulina*) use the surface waters of this habitat during winter months.

Haverstraw Bay 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 Atlantic Coast depend on, or benefit from, these biological inputs from the Hudson River estuary.

IMPACT ASSESSMENT

Any activity that would degrade water quality, increase turbidity or sedimentation, alter flows, water salinities or temperature in Haverstraw Bay would result in significant impairment of the habitat. Discharges of sewage, effluents or stormwater runoff containing sediments or chemical pollutants may result in significant adverse impacts on the habitat area. Similarly, spills of oil or other hazardous substances, and leachate of contaminated groundwater, constitute a potential threat to fish and wildlife in the bay. 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).

Any physical modification of the habitat or adjacent wetlands, through dredging, filling or bulkheading, would result in a direct loss of valuable habitat area. Construction of shoreline structures, such as docks, piers, bulkheads, or revetments, in areas not previously altered by human activity would result in the loss of productive areas which support the fish and wildlife resources of Haverstraw Bay. Construction of structures in areas previously altered may result in a direct loss of valuable 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 and anadromous species, as well as bald eagle overwintering periods (December through March)..

Existing vegetated areas bordering Haverstraw Bay should be maintained and where possible restored to provide bank cover, soil stabilization, maintain or improve water quality and provide buffer areas from development. Of particular concern are the potential impacts related to development in adjacent forested areas.

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 re-suspension of 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

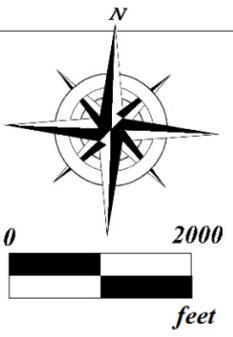
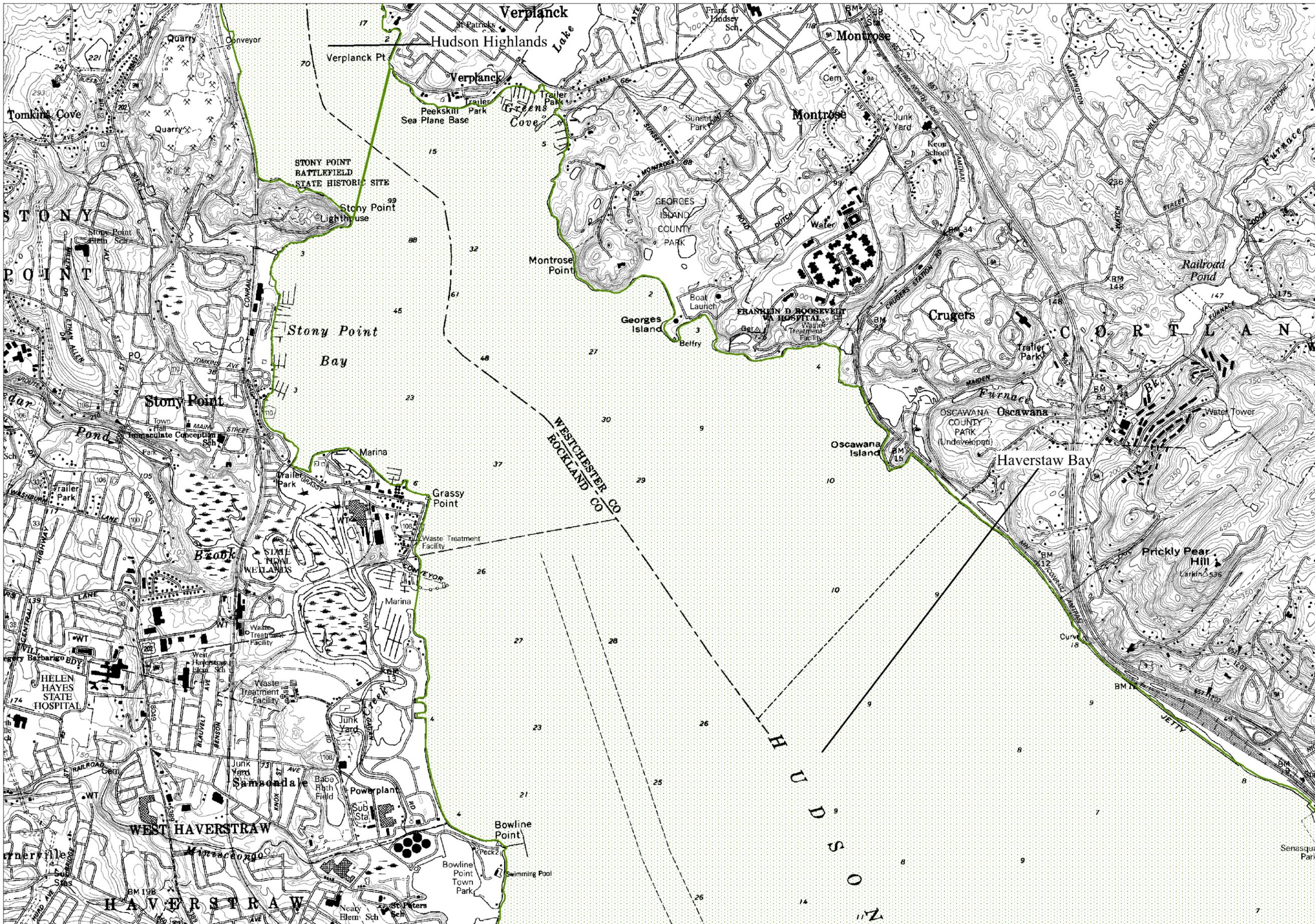
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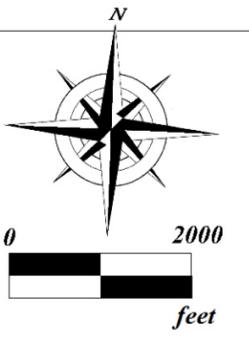
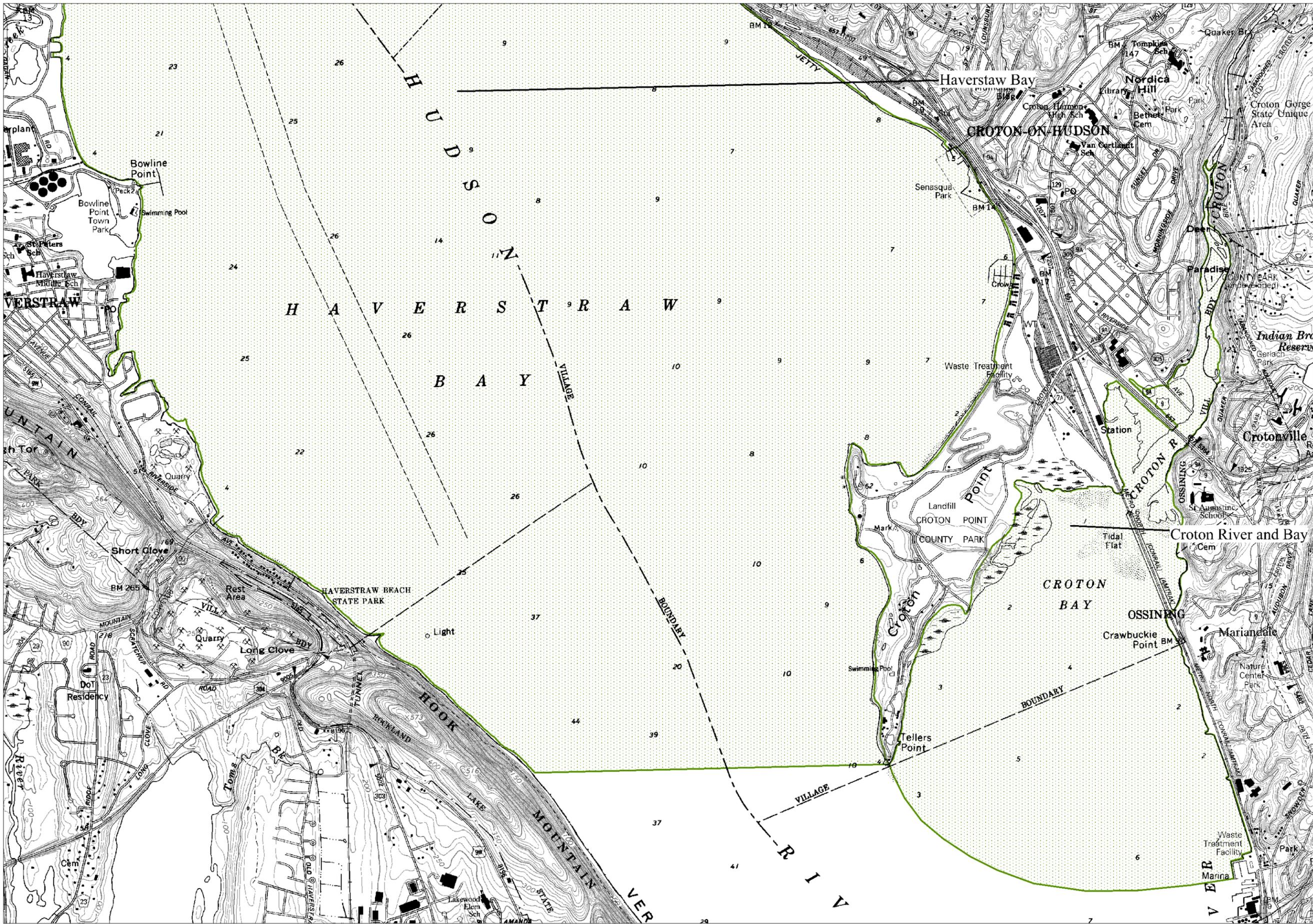
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Significant Coastal Fish and Wildlife Habitats

Haverstraw Bay (In Part) part 1 of 2
 Hudson Highlands (In Part)





Significant Coastal Fish and Wildlife Habitats

Haverstraw Bay (In Part) part 2 of 2
 Croton River and Bay

