

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: Kingston Deepwater Habitat

Designated: **November 15, 1987**

County(ies): **Dutchess; Ulster**

Town(s): **Rhinebeck, Hyde Park; Esopus**

7½' Quadrangle(s): **Hyde Park, NY; Kingston, NY**

<u>Score</u>	<u>Criterion</u>
40	Ecosystem Rarity (ER) An extensive area of deep, freshwater, estuarine habitat; rare in New York State; but somewhat common in the Hudson River. Geometric mean: $(25 \times 64)^{1/2} = 40$.
36	Species Vulnerability (SV) Shortnose sturgeon (E) wintering area.
0	Human Use (HU) Commercial netting of shad in overlying waters, but no significant human use of the deepwater habitat.
16	Population Level (PL) Concentrations of sturgeon and other estuarine species are unusual in New York State.
1.2	Replaceability (R) Irreplaceable.

SIGNIFICANCE VALUE = $[(ER + SV + HU + PL) \times R] = 110$

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS PROGRAM A PART OF THE NEW YORK COASTAL MANAGEMENT PROGRAM

BACKGROUND

New York State's Coastal Management Program (CMP) includes a total of 44 policies which are applicable to development and use proposals within or affecting the State's coastal area. Any activity that is subject to review under Federal or State laws, or under applicable local laws contained in an approved local waterfront revitalization program will be judged for its consistency with these policies.

Once a determination is made that the proposed action is subject to consistency review, a specific policy aimed at the protection of fish and wildlife resources of statewide significance applies. The specific policy statement is as follows: "Significant coastal fish and wildlife habitats will be protected, preserved, and, where practical, restored so as to maintain their viability as habitats." The New York State Department of Environmental Conservation (DEC) evaluates the significance of coastal fish and wildlife habitats, and following a recommendation from the DEC, the Department of State designates and maps specific areas. Although designated habitat areas are delineated on the coastal area map, the applicability of this policy does not depend on the specific location of the habitat, but on the determination that the proposed action is subject to consistency review.

Significant coastal fish and wildlife habitats are evaluated, designated and mapped under the authority of the Coastal Management Program's enabling legislation, the Waterfront Revitalization and Coastal Resources Act (Executive Law of New York, Article 42). These designations are subsequently incorporated in the Coastal Management Program under authority provided by the Federal Coastal Zone Management Act.

This narrative constitutes a record of the basis for this significant coastal fish and wildlife habitat's designation and provides specific information regarding the fish and wildlife resources that depend on this area. General information is also provided to assist in evaluating impacts of proposed activities on parameters which are essential to the habitat's values. This information is to be used in conjunction with the habitat impairment test found in the impact assessment section to determine whether the proposed activities are consistent with this policy.

DESIGNATED HABITAT: KINGSTON DEEPWATER HABITAT

HABITAT DESCRIPTION:

Kingston Deepwater Habitat encompasses a six mile stretch of the Hudson River extending approximately from the City of Kingston in Ulster County and the Village of Rhinecliff in Dutchess County south to the southern boundary of the Margaret Lewis Norrie State Park in Dutchess County. The area is located in the Towns of Rhinebeck and Hyde Park in Dutchess County and the Town of Esopus in Ulster County (7.5' Quadrangle: Hyde Park, N.Y. and Kingston East, N.Y.). The significant habitat area is a nearly continuous deepwater section of the river, from 30 feet to the bottom, especially where water depths of 50 feet or greater occur.

FISH AND WILDLIFE HABITAT:

The Kingston 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 provide wintering habitat for shortnose sturgeon (E) and support a diversity of marine species in the Hudson River. The Kingston Deepwater Habitat is probably the northernmost wintering location of shortnose sturgeon in the Hudson River. Recent fisheries investigations of the Hudson River indicate spawning as well as wintering of sturgeon in this area. Although habitat requirements of this species in the Hudson River are not well known, it is believed that these deepwater areas may be critical year round. Shortnose sturgeon use the portion of the river which generally is greater than 30 feet in depth. This area is also significant since it is largely responsible for the abundance of marine species upriver (the northern range limit for many in New York), especially during periods of low freshwater flows (summer). The majority of both Atlantic and shortnose sturgeon taken for age-growth analysis during the biological survey in the 1930's came from Rhinecliff and Port Ewen. During the spring spawning run of shad, commercial drift netting takes place in the surface waters overlying this area.

IMPACT ASSESSMENT:

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:

- destroy the habitat; or,
- 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, 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.

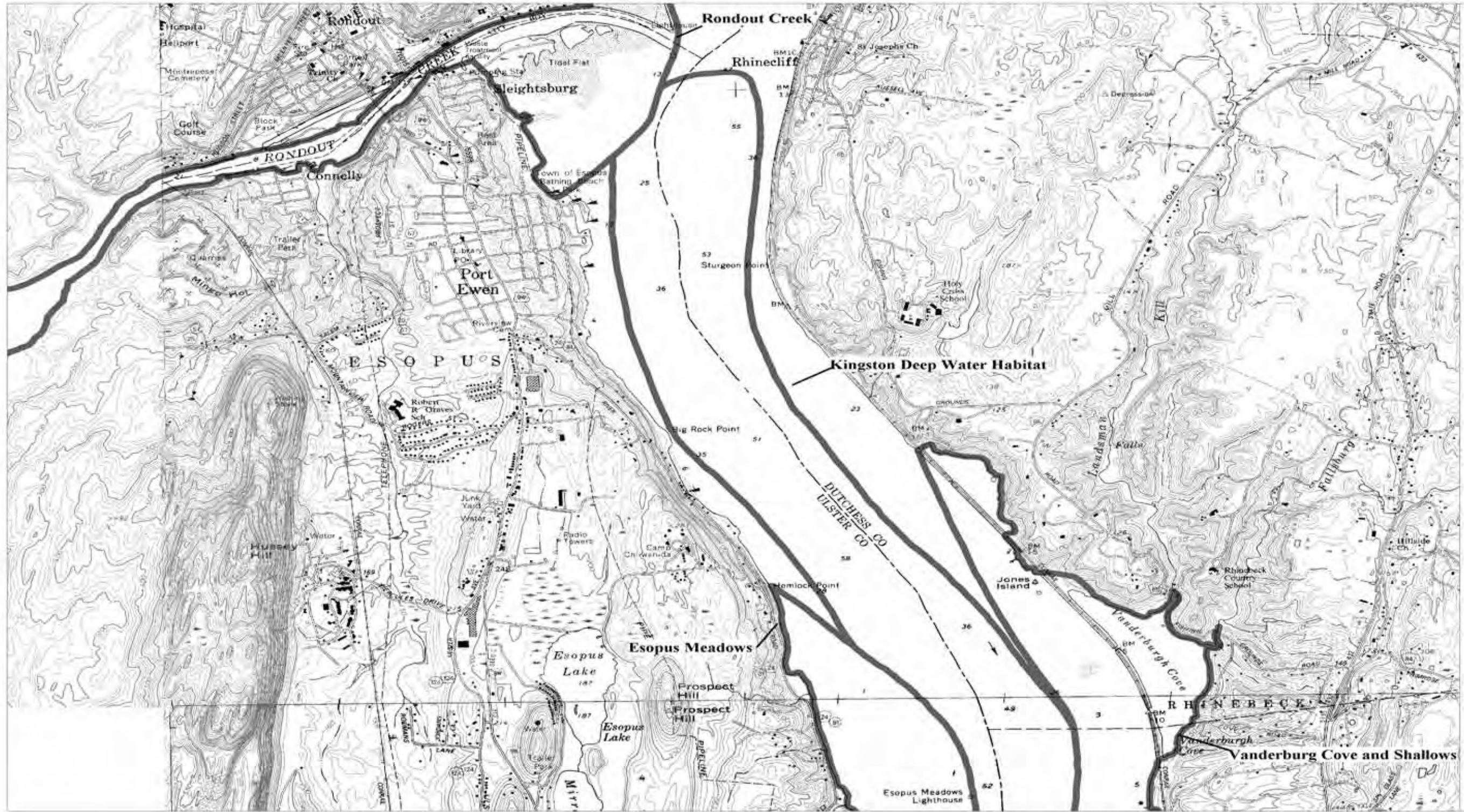
The tolerance range of an organism is not defined as the physiological range of conditions beyond which a species will not survive at all, but as the ecological range of conditions that supports the species population or has the potential to support a restored population, where practical. Either the 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 include but are 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).

Although not comprehensive, examples of generic activities and impacts which could destroy or significantly impair the habitat are listed below to assist in applying the habitat impairment test to a proposed activity.

Activities that would substantially degrade water quality, including changes in temperature, turbidity, or freshwater to saline distribution in the deepwater portions of the river, would result in significant impairment of the habitat. This area may be especially sensitive to discharges of wastewater, sewage effluent or agricultural runoff. Major reduction in overall depths within this deepwater trench would also have significant adverse effects on use of the habitat by shortnose sturgeon. Deposition of dredged material or natural sediments, especially if contaminated, would degrade the quality of this ecosystem. Impingement of shortnose sturgeon on water intake screens could affect the population status of this endangered species.

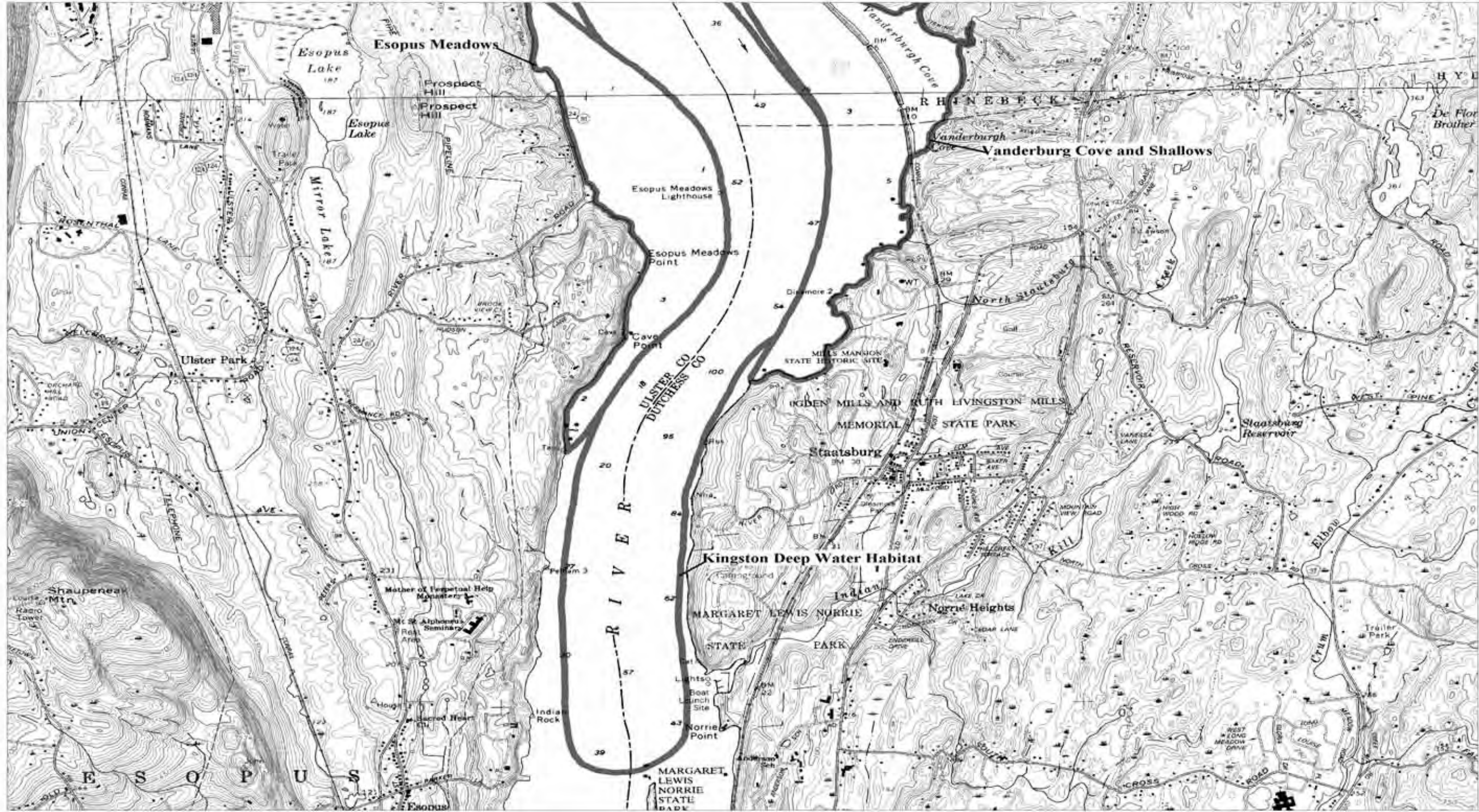


Significant Coastal Fish and Wildlife Habitats

- Esopus Meadows (In Part)
- Rondout Creek (In part)
- Vanderburgh Cove and Shallows (In part)

Kingston Deep Water Habitat (In part)
Part 1 of 2





Significant Coastal Fish and Wildlife Habitats

- Kingston Deep Water Habitat (In Part)
- Esopus Meadows (In Part)
- Vanderburgh Cove and Shallows (In part)



COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **The Flats**

Designated: **November 15, 1987**

County(ies): **Ulster; Dutchess**

Town(s): **Ulster, Kingston; Red Hook, Rhinebeck**

7½' Quadrangle(s): **Kingston East, NY**

<u>Score</u>	<u>Criterion</u>
64	Ecosystem Rarity (ER) An extensive area of shallow, freshwater, tidal flats; rare in New York State.
0	Species Vulnerability (SV) Shortnose sturgeon (E) occur in the area, but habitat use is not adequately documented.
18	Human Use (HU) Area supports a commercial shad fishery of statewide significance; recreational fishing attracts anglers from Ulster and Dutchess Counties. Additive division: $16 + 4/2 = 18$.
16	Population Level (PL) One of the major shad spawning areas in the Hudson River; concentrations are unusual in New York State.
1.2	Replaceability (R) Irreplaceable.

SIGNIFICANCE VALUE = $[(ER + SV + HU + PL) \times R] = 118$

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS PROGRAM A PART OF THE NEW YORK COASTAL MANAGEMENT PROGRAM

BACKGROUND

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Once a determination is made that the proposed action is subject to consistency review, a specific policy aimed at the protection of fish and wildlife resources of statewide significance applies. The specific policy statement is as follows: "Significant coastal fish and wildlife habitats will be protected, preserved, and, where practical, restored so as to maintain their viability as habitats." The New York State Department of Environmental Conservation (DEC) evaluates the significance of coastal fish and wildlife habitats, and following a recommendation from the DEC, the Department of State designates and maps specific areas. Although designated habitat areas are delineated on the coastal area map, the applicability of this policy does not depend on the specific location of the habitat, but on the determination that the proposed action is subject to consistency review.

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This narrative constitutes a record of the basis for this significant coastal fish and wildlife habitat's designation and provides specific information regarding the fish and wildlife resources that depend on this area. General information is also provided to assist in evaluating impacts of proposed activities on parameters which are essential to the habitat's values. This information is to be used in conjunction with the habitat impairment test found in the impact assessment section to determine whether the proposed activities are consistent with this policy.

DESIGNATED HABITAT: THE FLATS

HABITAT DESCRIPTION:

The Flats is located in the middle of the Hudson River, roughly between the hamlet of Barrytown and the City of Kingston, in the Town of Ulster and City of Kingston, Ulster County, and the Towns of Red Hook and Rhinebeck, Dutchess County (7.5' Quadrangle: Kingston East, N.Y.). The fish and wildlife habitat is an approximate four and one-half mile long underwater ridge, most of which is shallow (less than 10 feet deep at mean low water), freshwater, intertidal mud flats, and subtidal aquatic beds (predominantly wild celery and Eurasian water milfoil). The Flats is bordered to the west by the Hudson River navigation channel, resulting in potential habitat disturbance from periodic maintenance dredging.

FISH AND WILDLIFE VALUES:

The Flats is one of the largest contiguous areas of shallow, freshwater, tidal flats in the Hudson River. Areas such as this are extremely valuable fish and wildlife habitats, and are not found in other coastal regions of New York State.

The Flats is one of the primary Hudson River spawning grounds for American shad. Between mid-March and June, adult shad concentrate between Kingston and Coxsackie, and spawning occurs primarily on extensive flats, shoals, sandbars, and shallow areas near the mouths of tributary creeks. These fish may move into adjacent deeper areas while tidal currents are strong. Reproduction by shad in The Flats area supports much of the commercial gillnet fishery for this species on the Hudson River, which is one of the largest such fisheries in the U.S. The importance of the Flats is highlighted by the fact that it is the only area on the Hudson where commercial fishing is prohibited during the shad spawning period. The Flats also serves as spawning, nursery, and feeding habitat for striped bass, white perch, and various resident freshwater species. Concentrations of the early developmental stages of several anadromous species occur in this area.

Shortnose sturgeon (E) and Atlantic sturgeon may also use the area to feed (especially during slack water in late spring and summer), or as a resting area during river-wide movements, or as a slightly preferable habitat when water temperatures are warmer than in adjacent deeper waters (i.e., in early spring and fall). High catches of shortnose sturgeon occur in channels adjoining The Flats, particularly on the east side. The abundant fisheries resources in this area provide an excellent recreational fishery, attracting anglers from nearby portions of Ulster and Dutchess Counties.

Significant concentrations of waterfowl also occur in The Flats area. Dense growths of wild celery provide valuable feeding areas for many species of ducks, and are especially important during spring (March-April) and fall (mid-September - early December) migrations. Concentrations of diving ducks, such as scaups, redhead, canvasback, common goldeneye, and mergansers, are regularly found out in The Flats. During calm weather, this open river area is also used by dabbling ducks, including mallard, black duck, and blue-winged teal, and provides a refuge from hunting pressure in shoreline areas.

IMPACT ASSESSMENT:

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.

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Significant impairment is defined as reduction in vital resources (e.g., food, shelter, living space) or change in environmental conditions (e.g., temperature, substrate, 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 include but are not limited to the following:

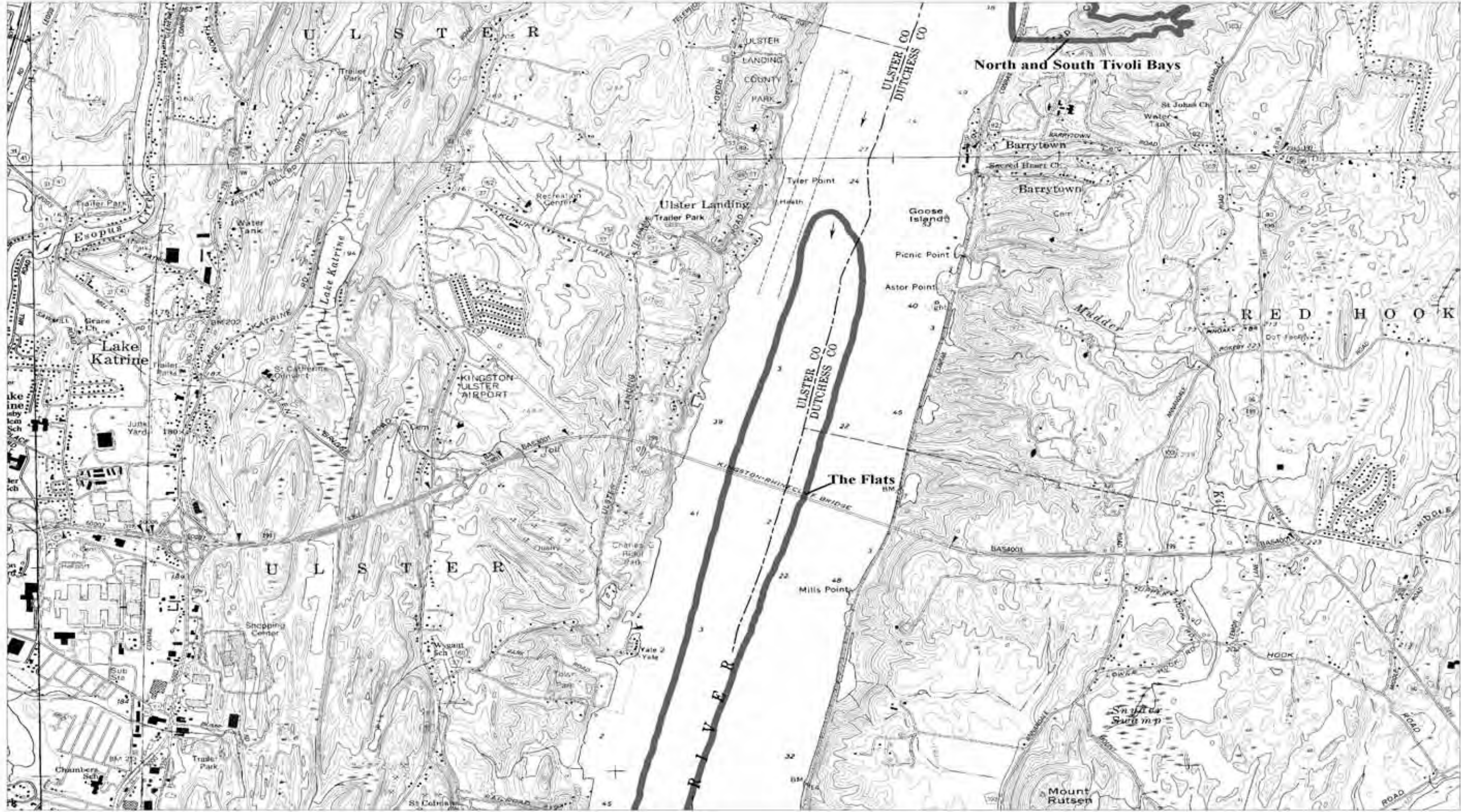
1. physical parameters such as living space, circulation, flushing rates, tidal amplitude,

- 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,
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Although not comprehensive, examples of generic activities and impacts which could destroy or significantly impair the habitat are listed below to assist in applying the habitat impairment test to a proposed activity.

Any activity that would substantially degrade water quality in The Flats would affect the biological productivity of this area and result in significant impairment of the habitat. Species of fish and wildlife may be adversely affected by water pollution, such as chemical contamination (including food chain effects), oil spills, excessive turbidity or sedimentation, 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 ships. 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 a fish and wildlife habitat; no new navigation channels should be cut through the area.

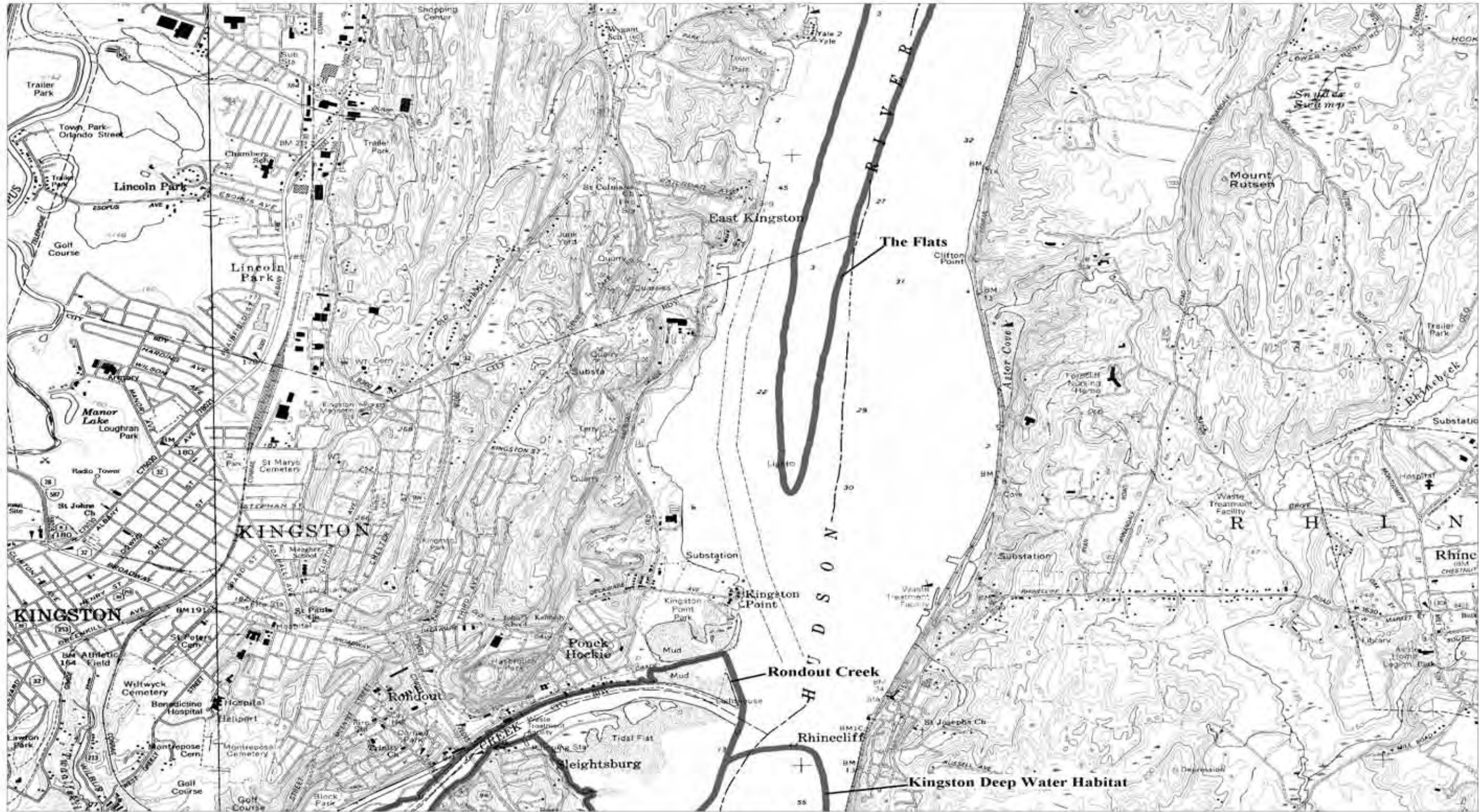
Thermal discharges, depending on time of year, may have variable effects on use of the area by aquatic species; shad spawning activities and survival are directly affected by water temperature. Installation and operation of water intakes could have significant impacts on fish populations in the area, through impingement of juvenile and adult fish, or entrainment of eggs and larval stages.



Significant Coastal Fish and Wildlife Habitats
The Flats (In part)
North and South Tivoli Bays (In part)
Part 1 of 2



New York State
Department of State
Division of
Coastal Resources



Significant Coastal Fish and Wildlife Habitats

- The Flats (In part)
- Kingston Deep Water Habitat (In part)
- Rondout Creek (In part)

The Flats (In part)
Part 2 of 2



New York State
Department of State
Division of
Coastal Resources

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Vanderburgh Cove and Shallows**

Designated: **November 15, 1987**

County: **Dutchess**

Town(s): **Rhinebeck, Hyde Park**

7½' Quadrangle(s): **Kingston East, NY; Hyde Park, NY**

<u>Score</u>	<u>Criterion</u>
9	Ecosystem Rarity (ER) Relatively large, sheltered, freshwater tidal coves and adjoining shallows; unusual in Dutchess County.
0	Species Vulnerability (SV) Shortnose sturgeon (E) may occur in the area, but habitat use not adequately documented.
4	Human Use (HU) Waterfowl hunting attracts visitors from throughout Dutchess County.
4	Population Level (PL) One of the major waterfowl concentration areas in Dutchess County.
1.2	Replaceability (R) Irreplaceable.

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R] = **20**

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DESIGNATED HABITAT: VANDERBURGH COVE AND SHALLOWS HABITAT

DESCRIPTION:

Vanderburgh Cove and Shallows is located on the east side of the Hudson River, approximately four miles south of the Village of Rhinebeck, in the Towns of Rhinebeck and Hyde Park, Dutchess County (7.5' Quadrangles: Kingston East, N.Y.; and Hyde Park, N.Y.). Vanderburgh Cove is an approximate 100 acre, shallow, (less than 10 feet deep at mean low water), tidal, freshwater, bay, separated from the open river by the Penn Central railroad.

The cove is hydrologically connected to the river via two bridges in the railroad, and contains dense beds of water chestnut, wild celery, Eurasian water milfoil, pickerelweed, and yellow pond lily. Emergent marsh vegetation (e.g., river bulrush and cattail) is present only around the margin of Vanderburgh Cove, and where two small tributaries, the Landsman Kill and Fallsburg Creek, empty into the area. Also included in the habitat is Suckley Cove, a similar 30 acre area to the north of Vanderburgh Cove.

Outside of the railroad is an approximate 1,000 foot wide extension of the shallow water area in Vanderburgh Cove, encompassing approximately 300 acres. The latter area is predominantly subtidal, with a silt substrate and beds of aquatic vegetation. These shallows are located adjacent to a natural deepwater channel in the Hudson River, so the area is not subject to habitat disturbance from periodic maintenance dredging. The land area bordering Vanderburgh Cove and Shallows is predominantly deciduous forest on moderate to steep slopes, including a portion of Ogden and Ruth Livingston Mills Memorial State Park and Wilderstien, a not-for-profit historic site and nature preserve. However, since the 1970's, new residential development has been increasing in adjacent areas.

FISH AND WILDLIFE VALUES:

Vanderburgh Cove and Shallows is one of the largest contiguous areas of shallow, freshwater, subtidal flats in Dutchess County. Areas such as this are extremely valuable fish and wildlife habitats. However, the importance of this area is limited somewhat by its small size relative to similar habitats elsewhere in the Hudson River, and possibly by the abundance of water chestnut within Vanderburgh Cove. Suckley Cove is a high quality portion of the habitat, with minimal human disturbance. Vanderburgh Cove and Shallows is a productive littoral area located near the lowest reaches of shallow freshwater in the Hudson River, which is a critical area for many fish species. The shallow, subtidal beds provide spawning, nursery, and feeding habitats for anadromous species such as striped bass, American shad, and white perch, and for a variety of resident freshwater species, such as largemouth bass, carp, brown bullhead, yellow perch, and shiners. The Landsman Kill and Fallsburg Creek also attract spawning runs of smelt, alewife, and blueback herring, although the extent of reproduction has not been documented.

Concentrations of spawning anadromous fishes generally occur in the area between mid-March and July, with substantial numbers of young-of-the-year fish remaining well into the fall (October-November). Vanderburgh Cove and Shallows may also serve as a feeding area for populations of

shortnose sturgeon (E) wintering in the adjacent deepwater channel. The abundant fisheries resources in Vanderburgh Cove and Shallows provide valuable opportunities for recreational (and possibly commercial) fishing, attracting anglers from throughout Dutchess County. Fishing pressure is generally concentrated near the tributary stream mouths and at railroad bridges.

Significant concentrations of waterfowl also occur in the Vanderburgh Cove and Shallows area. Dense growths of submergent vegetation provide valuable feeding areas for many species of ducks, and are especially important during spring (March-April) and fall (mid-September - early December) migrations. Concentrations of diving ducks, such as scaups, redhead, canvasback, common goldeneye, and mergansers, are regularly found out in the flats. The more shallow cove areas are used by dabbling ducks, including mallard, black duck, wood duck, and blue-winged teal, especially during inclement weather. Rafts of several hundred birds have been observed in Vanderburgh Cove during fall migrations. Consequently, this is one of the most popular waterfowl hunting areas in Dutchess County, second only to Tivoli Bays. Depending on weather conditions, some waterfowl may remain in the area throughout winter. Although occasional observations have been reported, the extent to which other bird species, such as loons, grebes, gulls, wading birds, shorebirds, and osprey (T), may use the area has not been well documented.

IMPACT ASSESSMENT:

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Although not comprehensive, examples of generic activities and impacts which could destroy or significantly impair the habitat are listed below to assist in applying the habitat impairment test to a proposed activity.

Any activity that would substantially degrade water quality in Vanderburgh Cove and Shallows would result in significant impairment of the habitat. All species of fish and wildlife may be adversely affected by water pollution, such as chemical contamination (including food chain effects), oil spills, excessive turbidity or sedimentation, and waste disposal.

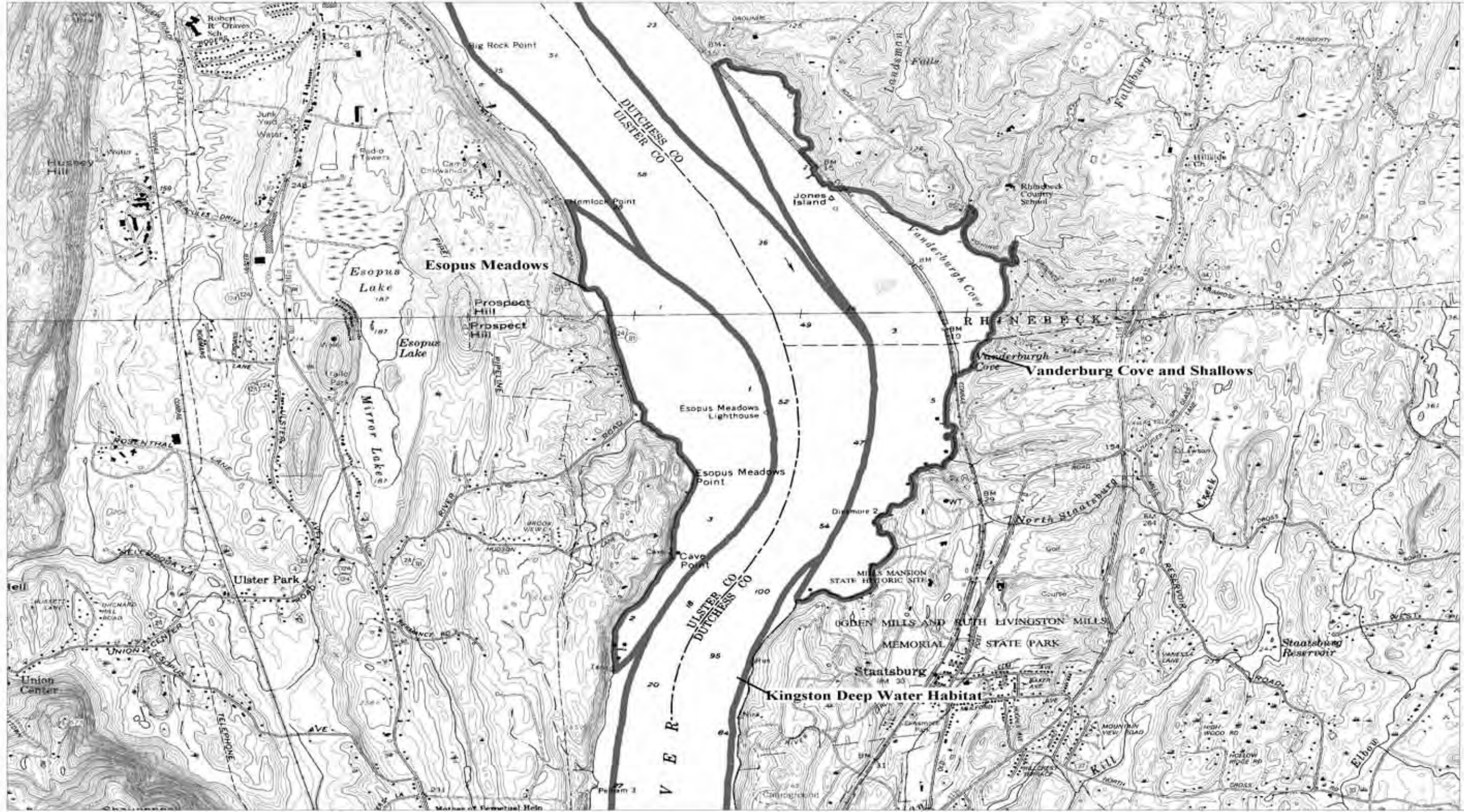
Continued efforts should be made to improve water quality in the Hudson River, which is primarily dependent upon controlling discharges from combined sewer overflows, industrial point sources, and ships. Application of herbicides or insecticides along the railroad right-of-way or adjacent uplands may result in adverse impacts on the fish and wildlife resources of the area.

Alteration of tidal fluctuations in Vanderburgh Cove and Shallows could have significant impacts on fish and wildlife; increased tidal exchange may improve habitat quality in the cove. During the early 1980's, a railroad bridge opening to the cove was made smaller, and this may have had detrimental effects. Disruption of natural plant communities or benthos in the area could reduce its value as a fish and wildlife habitat, although control of water chestnut may be desirable or necessary to maintain certain species. Any physical disturbance of the habitat, through dredging or filling (including dredge spoil disposal), would result in a direct loss of valuable habitat area; any dredging activities needed to maintain the existing channel should be scheduled in mid to late summer to

minimize potential impacts on most aquatic organisms and migratory birds. Thermal discharges, depending on time of year, may have variable effects on use of the area by aquatic species and wintering waterfowl; fish spawning activities and survival are often directly affected by water temperature. Installation and operation of water intakes could have significant impacts on fish concentrations, through impingement of juveniles and adults, or entrainment of eggs and larval stages.

Significant human encroachment into adjacent areas may limit use of Vanderburgh and Suckley Coves by certain species. Existing areas of natural vegetation bordering Vanderburgh Cove and Shallows should be maintained for their value as cover, perch sites, and buffer zones. Enhancement of appropriate public access to increase compatible human uses of fish and wildlife resources in the area may be desirable.

Esopus Meadows Vanderburgh Cove and Shallows Map



Significant Coastal Fish and Wildlife Habitats

- Esopus Meadows
- Vanderburgh Cove and Shallows
- Kingston Deep Water Habitat (In part)

