

APPENDIX AA

**COASTAL FISH & WILDLIFE HABITAT
RATING FORM, NARRATIVE, AND MAPS**

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: Rondout Creek

Designated: November 15, 1987

County: Ulster

Town(s): Esopus, Kingston, Ulster

7½' Quadrangle(s): Kingston East, NY; Kingston West, NY

Score Criterion

- 20 Ecosystem Rarity (ER)
 One of the major freshwater tributaries of the Hudson River which is accessible to anadromous fishes, but rarity reduced by human disturbance. Geometric mean: $16 \times 25 = 20$.
- 25 Species Vulnerability (SV)
 Osprey (T) concentrate at the mouth of the creek during spring migration.
- 9 Human Use (HU)
 Recreational fishing and waterfowl hunting opportunities attract visitors from throughout the mid-Hudson Valley.
- 4 Population Level (PL)
 Concentrations of various anadromous and resident freshwater fish species are unusual in Ulster County.
- 1.2 Replaceability (R)
 Irreplaceable.

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R]
 = 70

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, along with its accompanying map, 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 the significant coastal habitats policy.

DESIGNATED HABITAT: RONDOUT CREEK

HABITAT DESCRIPTION:

Rondout Creek is located on the west side of the Hudson River, on the boundary between the City of Kingston and the Towns of Esopus and Ulster, Ulster County (7.5' Quadrangles: Kingston East, N.Y.; and Kingston West, N.Y.).

The fish and wildlife habitat is an approximate four mile segment of this freshwater tributary, extending from its mouth on the Hudson River to a dam which is located just upstream from the N.Y.S. Route 213 bridge at Eddyville. The habitat boundary along Rondout Creek (and the coastal area boundary from Eddyville Dam to Route 213) follows the tops of the banks. Rondout Creek is a large, medium gradient, perennial, warmwater stream, with a drainage area of over 1,100 square miles, and an average annual discharge volume of approximately 1,600 cubic feet per second. Municipal water withdrawals upstream may reduce flows year-round by as much as 200 cubic feet per second. Most of the habitat is within the tidal range of the Hudson River, and is relatively deep, with a silt and clay substrate. The lower one to two miles of Rondout Creek has been channelized to facilitate barge traffic to adjacent commercial and industrial developments in Kingston. An extensive marsh and mudflat area, locally known as Sleightsburg Marsh, exists at the mouth of the creek. Portions of Rondout Creek and its associated riparian zone remain in a relatively natural condition, but habitat disturbances in the area include dredging, discharges of wastewater from industrial and municipal point sources, and altered flows resulting from upstream impoundments.

FISH AND WILDLIFE VALUES:

Rondout Creek is one of the largest freshwater tributaries of the Hudson River estuary. The considerable length of stream channel accessible to migratory fishes, and the lack of significant human disturbance in the upper portion of the creek, provide favorable habitat conditions for a variety of anadromous as well as resident freshwater fish species. Rondout Creek is an important spawning area for alewife, smelt, blueback herring, white perch, tomcod, and striped bass. Generally, these species enter the stream between March 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 nursery areas in the Hudson River. An exception is tomcod, which spawn in the area in December and January. American shad spawn in shallow water areas at the mouth of Rondout Creek. Substantial populations of brown bullhead, yellow perch, sunfish, and smallmouth and largemouth bass, occur in the creek throughout the year.

Freshwater inflows from Rondout Creek are very important for maintaining water quality in the Hudson River estuary. The abundant fisheries resources of Rondout Creek provide significant opportunities for recreational fishing. Although no developed public access facilities exist, the area is popular among anglers from throughout the mid Hudson Valley, especially in spring (March-April) for smelt, herring, and bullhead fishing, and in summer for largemouth and smallmouth bass fishing. Access to the area is available by boat and from many shoreline locations. Wetlands located at the mouth of Rondout Creek are productive feeding areas for a variety of waterfowl species during spring (March-April) and fall (mid-September-early December) migrations.

Although landfilling and waste disposal have eliminated much of the wetland area north of Rondout Creek, sizeable marshes and flats still remain. During spring migration, osprey (T) congregate at the mouth of Rondout Creek where clear water and shallows offer prime foraging conditions. Concentrations of waterfowl in this area attract hunters from throughout the mid Hudson Valley; this is one of about 4 significant waterfowl hunting areas in this region. In addition to these wildlife resources, several rare plant species have been documented in Sleightsburg Marsh.

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.

Any activity that would substantially degrade water quality, increase turbidity or sedimentation, reduce flows, or increase water temperatures in Rondout Creek would result in significant impairment of the habitat. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants may result in adverse impacts on fish or wildlife populations. Clear water areas at the mouths of tributary streams are important feeding areas for osprey during migration. Of particular concern are the potential effects of upstream disturbances, including water withdrawals, impoundments, stream bed disturbances, and effluent discharges.

Habitat disturbances would be most detrimental during fish spawning and incubation periods, which generally extend from March through July for most warmwater species. Redevelopment of hydroelectric facilities on the creek should only be allowed with run-of-river operations. Barriers to fish migration, whether physical or chemical, would have significant impacts on fish populations in the creek as well as in the Hudson River. Construction of fish passage facilities at the Eddyville dam would be beneficial to a variety of anadromous fish species in the Hudson estuary. Wetlands and shallows at the mouth of Rondout Creek should be protected from further degradation by activities such as dredging, filling (e.g., dredge spoil disposal), bulkheading, waste disposal, and oil spills. Existing areas of natural vegetation bordering Rondout Creek and its tributaries should be maintained to provide bank cover, soil stabilization, and buffer areas. Development of public access to the area may be desirable to ensure that adequate opportunities for compatible human uses of the fish and wildlife resources are available.

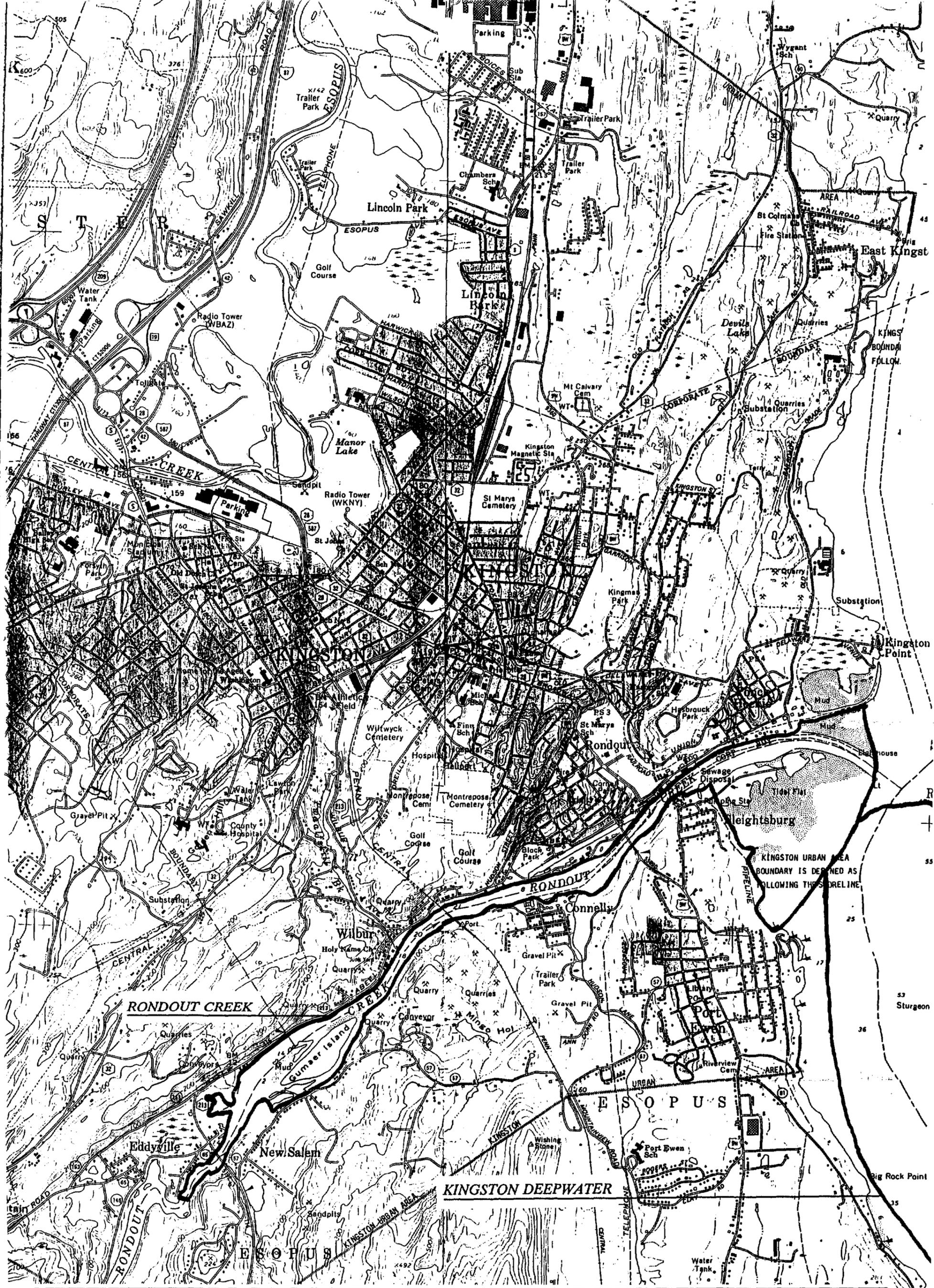
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SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

Rondout Creek / Kingston Deepwater (In part)

Miles



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

Score Criterion

- 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: $(25 \times 64)^{\frac{1}{2}} = 40$.
- 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) X R]
 = 110

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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.

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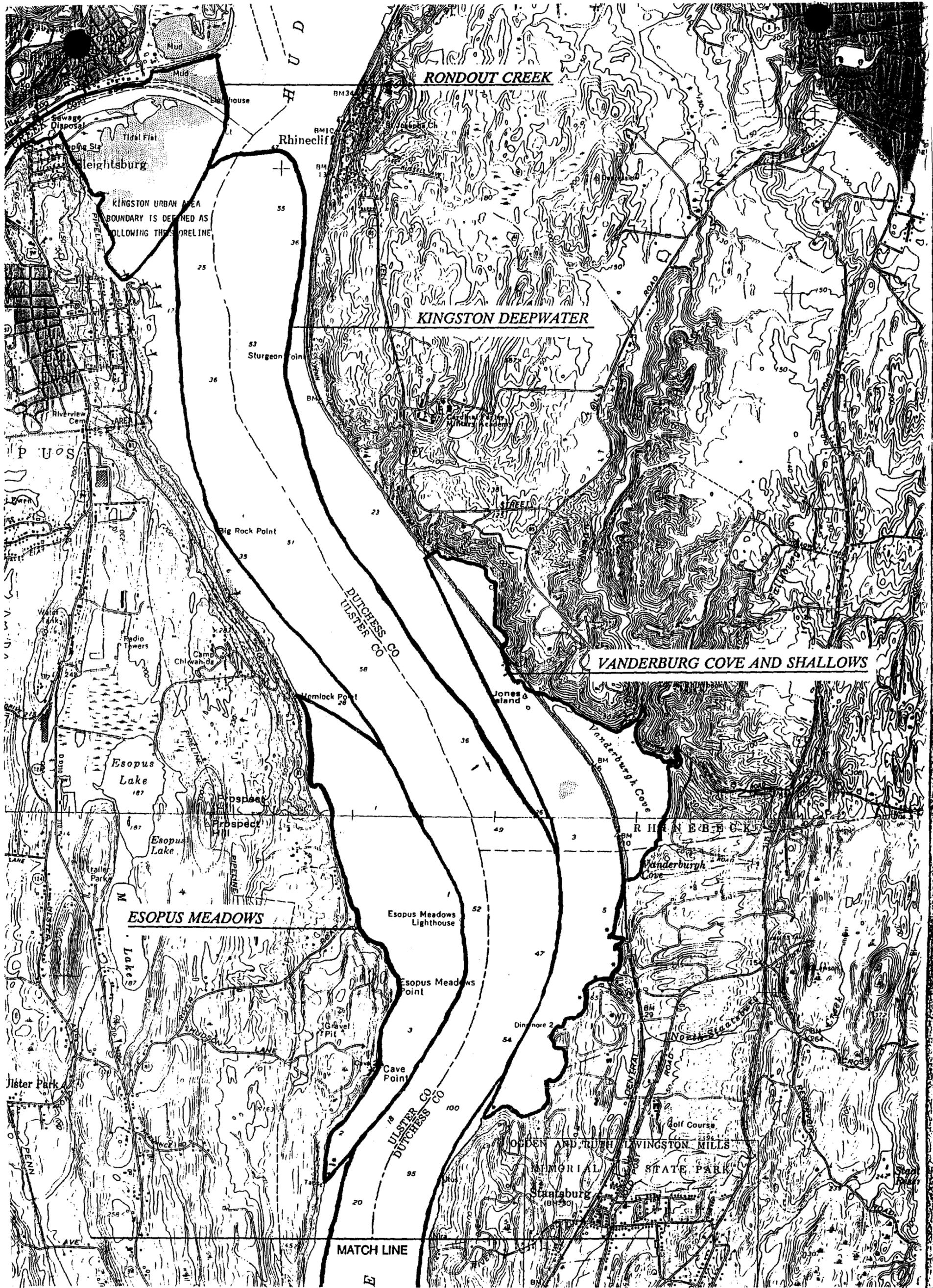
Activities that would substantially degrade water quality, including changes in temperature, turbidity, or freshwater to saline distribution in the deepwater portions of the river, would result in significant impairment of the habitat. This area may be especially sensitive to discharges of wastewater, 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.

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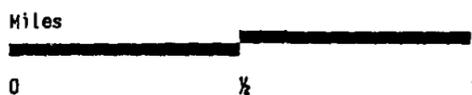
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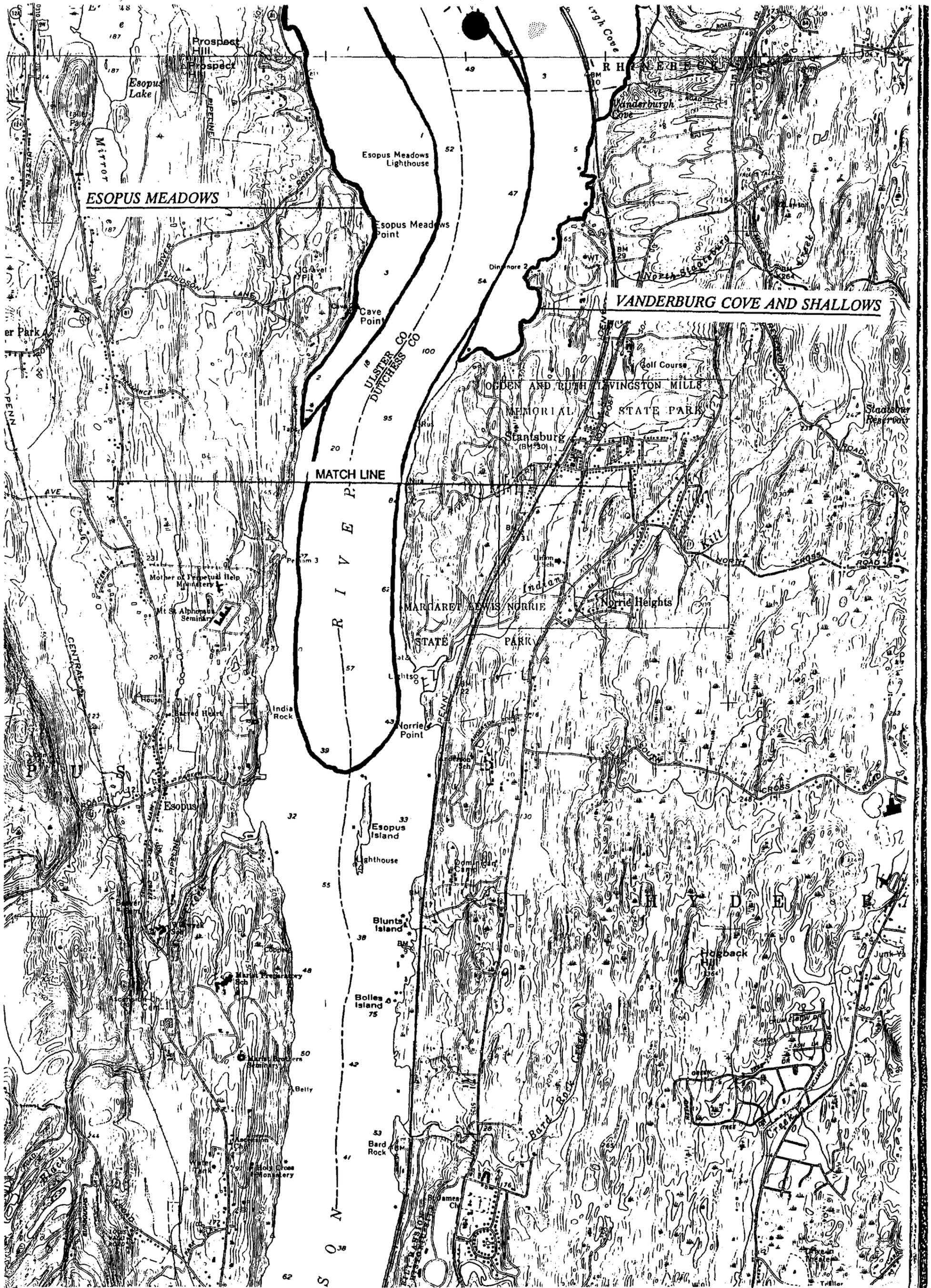
SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

Kingston Deepwater (in part) / Esopus Meadows / Vanderburgh Cove and Shallows / Rondout Creek (in part)

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

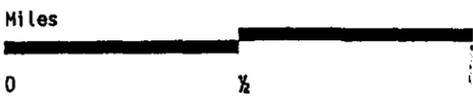


Prepared by T. Hart and G. Capobianco September 1990



SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

Kingston Deepwater (In part) / Vanderburg Cove and Shallows (In part) / Esopus Meadows (In part)



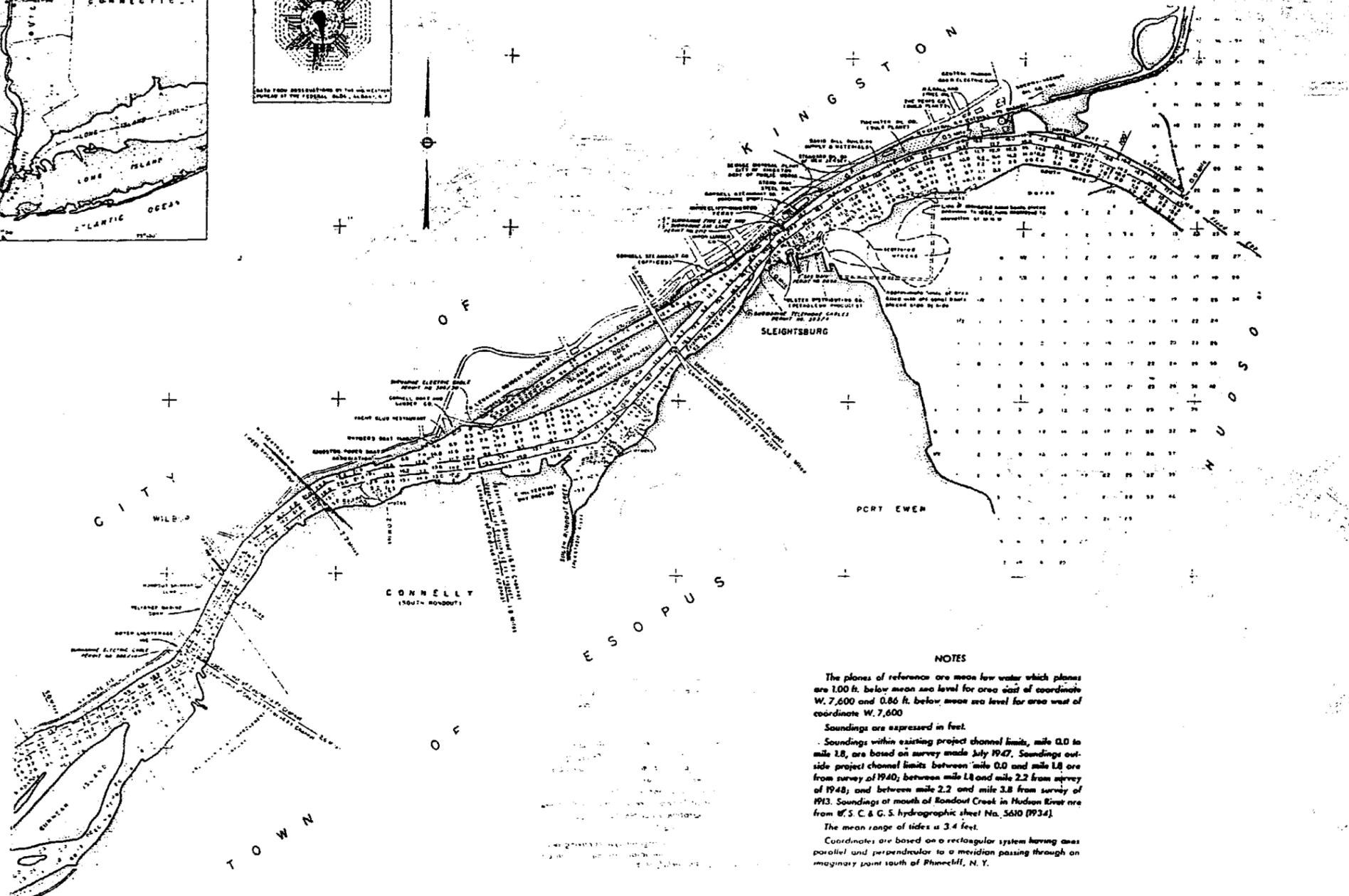
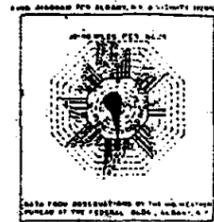
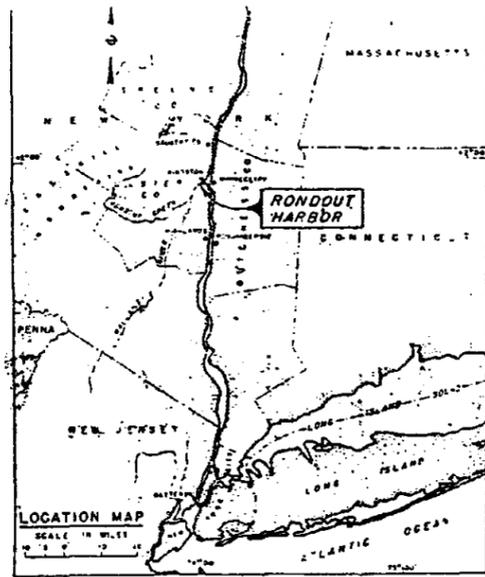
APPENDIX A
PROPOSED LAND USE MAP

APPENDIX B
KINGSTON ZONING MAP

APPENDIX C
NAVIGATIONAL CHANNELS MAP

KINGSTON LOCAL WATERFRONT REVITALIZATION PROGRAM

NAVIGATIONAL CHANNEL MAP



NOTES

The planes of reference are mean low water which planes are 1.00 ft. below mean sea level for area east of coordinate W. 7,600 and 0.86 ft. below mean sea level for area west of coordinate W. 7,600.

Soundings are expressed in feet.

Soundings within existing project channel limits, mile 0.0 to mile 1.8, are based on survey made July 1947. Soundings outside project channel limits between mile 0.0 and mile 1.8 are from survey of 1940; between mile 1.8 and mile 2.2 from survey of 1948; and between mile 2.2 and mile 3.8 from survey of 1913. Soundings at mouth of Rondout Creek in Hudson River are from U.S. C. & G. S. hydrographic sheet No. 5610 (1934).

The mean range of tides is 3.4 feet.

Coordinates are based on a rectangular system having axes parallel and perpendicular to a meridian passing through an imaginary point south of Rhinecliff, N. Y.



DATE 10/16/85 APPENDIX C