

LAND USE

Most of the Croton-Ossining area consists of open forested land and low-density residential areas; it also contains water bodies and small urban areas. Major water bodies include the Hudson River, the New Croton Reservoir, and the Croton River. A major railroad corridor traverses the east shore of the Hudson River. Croton Point, which protrudes 1.5 miles into the Hudson, is predominantly open park, municipal landfill, sand and gravel mining, railroad yards, and tidal marsh.

Land use in this area is an important consideration in formulating ground-water-protection programs for both consolidated (bedrock) and unconsolidated (sand and gravel) aquifers. Most individual domestic wells tap the bedrock aquifer, whereas public supplies are drawn from unconsolidated deposits in the Croton River valley and surface-water impoundments. Because most of the area consists of relatively impermeable till over fractured metamorphic bedrock (p. 2, 4), the potential for contaminated runoff to reach surface-water impoundments or to enter and move through highly fractured zones in the bedrock (p. 4) under natural or pumping-induced gradients is an important consideration in formulating land-use plans concerning the placement of potential contaminant sources. Most joints and fissures in bedrock are vertical or near vertical and are part of intersecting joint sets or fracture zones. Contaminants from surface sources can generally travel faster through water-filled cracks and fissures than through unconsolidated material and would have relatively little chance for adsorption, lateral dispersion, or diffusion (Freeze and Cherry, 1979, p. 408-413). Potential sources of contamination include, but are not limited to, landfills, salt-storage stockpiles, hydrocarbon-fuel storage (both domestic and commercial), septic tanks, and industrial facilities that have a high risk of contaminant leakage.

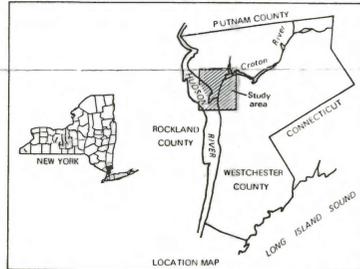
Because the Croton River aquifer receives some of its recharge as runoff from adjacent till-covered hillsides, any land use upslope from the river that generates contaminated runoff could pose a potential contamination problem to the aquifer, especially when flow in the Croton River is low.

SELECTED REFERENCES

- Cornell University, 1968, Land use and natural resource inventory (LURI) map series, Ossining and Haverstraw quadrangles, New York State Cooperative Extension, 2 sheets. 1:24,000 scale.
- Freeze, R. A. and Cherry, J. A., 1979, Groundwater: Englewood Cliffs, N.J., Prentice-Hall, Inc., 604 p.
- Westchester County Department of Planning, 1982, Westchester County Environmental Planning Atlas, generalized land use sheet—Westchester County: Westchester County Department of Planning, 1 sheet, scale 1:48,000.

EXPLANATION

- 1 INDUSTRIAL—Light and heavy manufacturing; petroleum and chemical-storage facilities.
- 2 EXTRACTIVE—Sand and gravel mining, both active and abandoned.
- 3 COMMERCIAL AND SERVICES—Includes urban areas, shopping centers, commercial strip development, communications facilities, and facilities without extensive grounds, such as hospitals, municipal buildings, government centers, schools, and universities.
- 3A LANDFILLS—Includes both active and abandoned landfills, open dumps, and junkyards.
- 3B SEWAGE-TREATMENT FACILITIES—Wastewater-treatment plants, effluent-discharge points; may include active and abandoned settling lagoons.
- 4 TRANSPORTATION (LAND OR AIR)—Facilities including limited-access highways, airports, and truck and train terminals and yards.
- 4A TRANSPORTATION (WATERWAYS)—Includes the Hudson River, barge canals, channels, locks, ports, docks, dams, and shipyards.
- 5 FARMLAND (CROPS AND PASTURE)—Includes active and inactive agricultural areas and lands used for horticulture or domestic livestock.
- 5A FARMLAND—Orchards and vineyards.
- 6 FOREST—Includes forest stands exceeding 30 feet in height, and brush, tree, and shrub cover reaching less than 30 feet; forested public and recreation areas, such as public and private campgrounds, ski resorts, and public parks; and forested hospital grounds, school campuses, and correctional facilities.
- 7 RESIDENTIAL—Includes high-, medium-, and low-density residential areas, trailer parks, rural hamlets, estates of 5 acres or more, farm-labor camps, developed shores, and commercial strip development that is at least 2/3 residential.
- 8 OPEN LAND—Includes open recreation areas and open public areas such as golf courses, hospital grounds, school and college campuses, correctional facilities, and cemeteries.
- 9 WATER AND WETLANDS—Includes natural or manmade ponds, lakes or reservoirs, streams and rivers averaging 100 feet wide or more, bogs and shrub wetlands, wooded wetlands, and marine wetlands.
- BOUNDARY—Approximate location of boundary between land-use areas.



HYDROGEOLOGY OF THE CROTON-OSSINING AREA, WESTCHESTER COUNTY, NEW YORK

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1988
Plate 4. Land Use

Land use modified from Land Use and Natural Resources Inventory (LURI) maps, Cornell University, 1968; and U.S. Geological Survey topographic maps, 1:24,000, Ossining, 1979, and Haverstraw, 1979.