

Haverhill Municipal Landfill (UD#2-1-3)
Haverhill, Massachusetts
30 June 1985

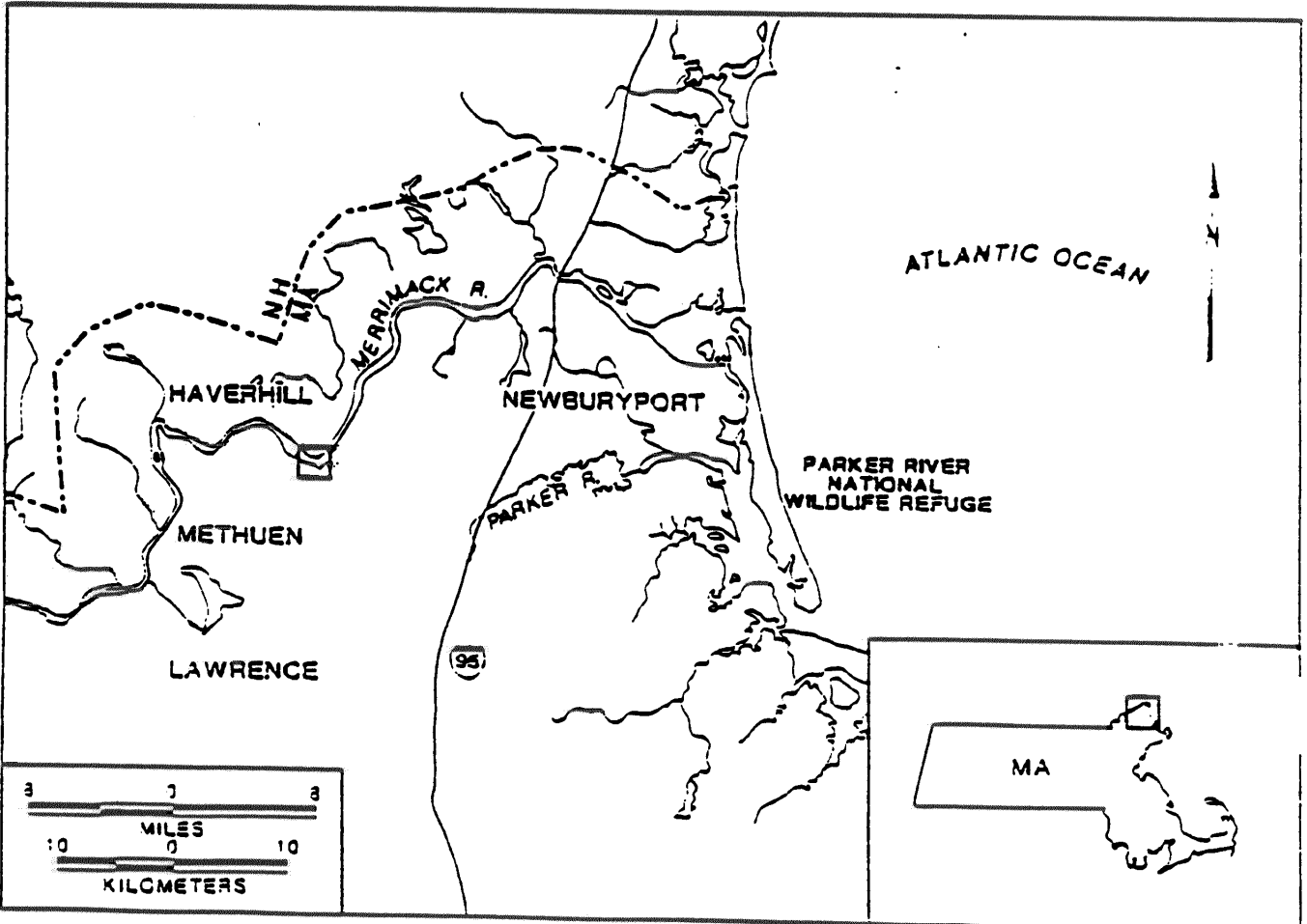
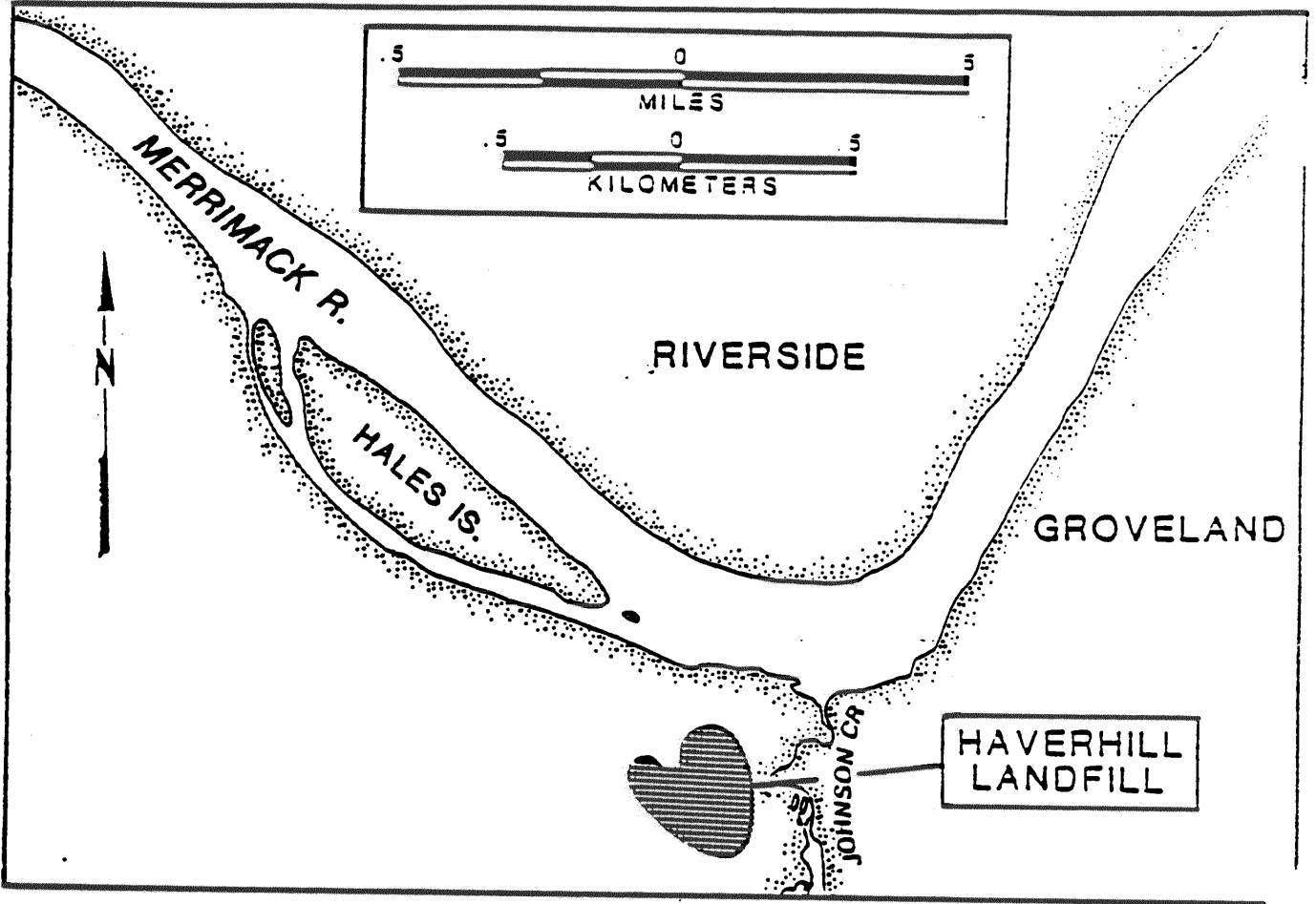
Location and Nature of Site

Haverhill Municipal Landfill covers 103 acres and is located southeast of downtown Haverhill, west of the town of Groveland. The site is bordered on the north by the Merrimack River; Johnson Creek flows along the eastern boundary of the site and empties into the Merrimack River. The municipal supply wells for Groveland are located east of the site on the other side of Johnson Creek.

The site is comprised of three tracts, including the original Haverhill Municipal Landfill, known to have been in operation since at least 1952 (prior to 1952, it was used as a borrow pit). Two tracts owned by Trimount Bituminous Products and the City of Haverhill make up approximately 50 acres and have been used primarily for disposal of municipal refuse. A third tract, adjacent to the Merrimack River, is also owned by Trimount Bituminous Products and is suspected of having been used for disposal of industrial wastes.

Aerial photographs taken between 1972 and 1978 indicate disposal of liquid wastes in the northeast corner of the site. The presence of liquid-filled trenches and bermed lagoons is evidence of bulk liquid disposal. Forty or more partially buried drums were present in two locations on the northern half of the site in 1977 and 1978, although there is no documentation of materials disposed of in the landfill.

Disposal activities on the site ended in 1981, with the exception of wastes from the Haverhill Water Treatment Plant and the Haverhill Paperboard Company. As part of a State of Massachusetts-monitored Final Closure Plan, these wastes are being used to help stabilize the sites's northeastern corner.



Proximity of Chemical Hazard to Marine Resources

The primary routes of offsite contamination are surface runoff and groundwater discharge to Johnson Creek and the Merrimack River. The groundwater and surface water from the Haverhill Landfill is contaminated with volatile organics and heavy metals. Volatile organics have been detected in groundwater on the site since sampling began in 1971. Of these, only trichloroethylene and xylene were found in concentrations greater than 100 ppb. The 1985 Groveland Wells RI/FS looked at maximum surface water concentrations of organics in Johnson Creek, as well as two other nearby streams, and found levels in the .01-.30 ppb range, with trichloroethylene found in the highest concentration (.29 ppb). No detectable levels of organics were found in Merrimack River samples.

Heavy metal contamination detected at the site includes arsenic, chromium, lead, and cadmium. A surface water sample collected from an uncovered disposal area in the industrial disposal zone along the river contained 6,300 ppb chromium; 2,500 ppb lead; and 100 ppb cadmium. Surface water runoff collected along the eastern side of the site had elevated arsenic levels (170 ppb). Monitoring wells between the site and the river, installed in 1981, revealed heavy metal concentrations of 685 ppb arsenic, 190 ppb chromium, and 325 ppb lead (over 3,000 ppb lead in one sample).

Marine Resources at Risk

The possible continuous discharge of large volumes of groundwater containing arsenic, chromium, lead, and cadmium into the river in the 100's ppb range represents a high mass loading of contaminants. These metals may chronically affect the benthic zone of the river. To date, no sediment samples have been collected and analyzed for either heavy metals or volatile organics.

This site directly impacts the anadromous fish resources of the Merrimack River. The Merrimack River system is divided into ten reach sections. The Haverhill site impacts Reach 1, which is approximately 48 kilometers long and extends from the coastal Salisbury jetty inland to the Essex dam at Lawrence, Massachusetts.

The Merrimack River Basin Fisheries Restoration Program involves several hatchery operations and the planned construction of fish passage devices at dam sites along the Merrimack River by the year 2000. After completion of restoration efforts, Atlantic sturgeon, rainbow smelt, and striped bass will use Reach 1 as their primary spawning and nursery habitat. Blueback herring, alewives, and American shad use will increase as stocks regenerate. Alewife spawning will occur in the freshwater tributaries of Reach 1, but success is restricted by man-made barriers on many streams.

Sea lamprey spawning is expected to be minimal in the reach. No suitable spawning areas exist in Reach 1 for Atlantic salmon, but salmon will transit the area to reach spawning grounds in the Merrimack's headwaters.

Site Chronology

- 1952 Earliest documentation of Haverhill Landfill being used for refuse disposal operations.
- 1972-78 Aerial photographs document disposal of bulk liquid and drummed wastes in northeast corner of Haverhill Landfill site.
- June-Oct. 1979 Groveland Municipal Supply Wells closed because of volatile organic contamination. Haverhill suspected as possible source.
- July 1980 Site reconnaissance conducted and samples collected.
- Sept. 1980 EPA completes site inspection of Haverhill Landfill. State of Massachusetts is lead response agency.
- May 1981 Waste disposal operations, with the exception of sewage sludge and beater wastes, discontinued at site.
- Aug. 1981 City of Haverhill develops Final Closure Plan for Haverhill Landfill as part of groundwater study.
- Oct. 1984 Haverhill Landfill proposed for NPL.
- March 1985 RI/FS for Groveland Wells determines Haverhill Landfill may be contributing contamination, but is not primary source. EPA is now lead response agency.
- May 1985 Photographic site analysis of Groveland Wells and Haverhill Municipal Landfill completed by EPA Environmental Monitoring Systems Lab.

NOAA Reviewer: Sharon Christopherson, NOAA Hazardous Materials Response Branch

EPA Contact: Jim Cirrillo

State Contact: Patricia Donahue

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