

---

## 68th Street Dump/Industrial Enterprises

*Rosedale, Maryland*

*EPA Facility ID: MDD980918387*

*Basin: Gunpowder-Patapsco*

*HUC: 02060003*

### Executive Summary

From 1953 to 1969, a sanitary landfill operated on the 68th Street Dump/Industrial Enterprises property, where illegal dumping also occurred. Refuse, incinerator ash, and waste oils were disposed of at five source areas, and contamination is migrating to several streams that traverse the property. Trace elements have contaminated the soils and sediment at concentrations that exceed screening guidelines. The streams that traverse the site, the Back River, and Chesapeake Bay are the NOAA trust habitats of concern and contain numerous fish and invertebrate resources. Recreational fisheries are present in the streams that traverse the site and in the Back River.

### Site Background

The 68th Street Dump/Industrial Enterprises property encompasses approximately 67 ha (165 acres) in Rosedale, Baltimore County, Maryland, adjacent to the Back River, an estuarine embayment of Chesapeake Bay (Figure 1). Several tributaries of the Back River traverse the site, including Herring Run, Redhouse Run, Moores Run, and an unnamed tributary of Herring Run (Figure 2; Weston 1999).

A sanitary landfill operated on the property from 1953 until a 1969 court order ended refuse operations. Illegal disposal activity has been observed as recently as 1993. Operations included the land-filling of industrial and commercial refuse, un-cooled incinerator ash, and disposal of waste oils in several pits. Site inspections reported problems that included uncontrolled fires, inadequate soil cover, nuisance odors, improper disposal of drums, and the migration of oil into adjacent surface waters. In 1979, state inspectors discovered more than 20 buried drums containing substances contaminated with trace elements. Refuse has been disposed of in the floodplain of Herring Run. The excavation of waste pits and the disposal of waste oils had also occurred near the stream (Weston 1999).

In total, five different source areas have been identified on the property: Source 1, the original landfill, adjacent to Herring Run; Source 2, also adjacent to Herring Run just east of Source 1; Source 3, an island situated between two channels of Herring Run; Source 4, adjacent to Redhouse Run; and Source 5, adjacent to an unnamed tributary of Herring Run (Figure 2; Weston 1999).

Pathways for the transport of contaminants off the property include the direct disposal of wastes into the floodplain, overland runoff into the streams, and groundwater. Because land-filling occurred directly in wetlands associated with the streams that traverse the property, wastes are in direct contact with the water table. Contaminated seeps have been observed on the banks of one of the unnamed tributaries (Weston 1999).

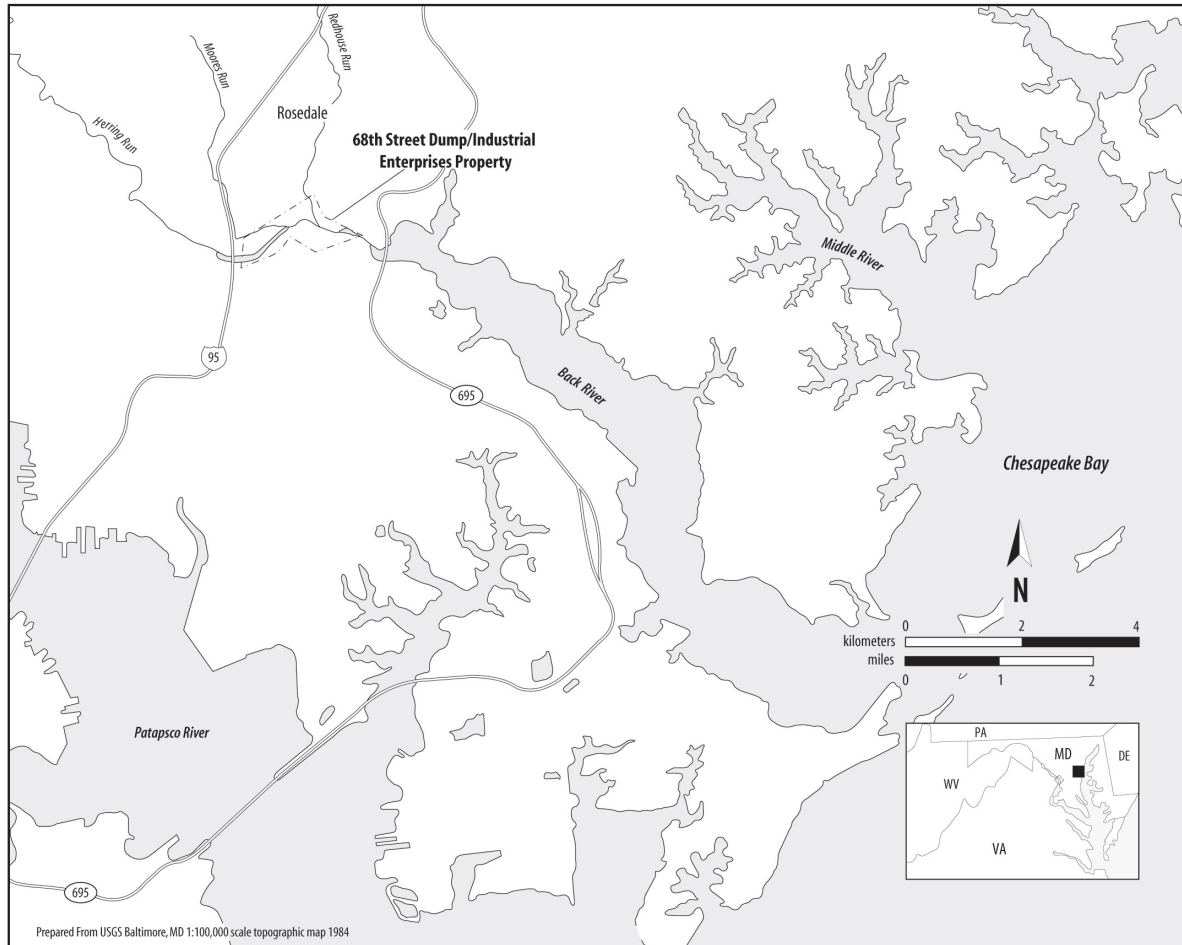


Figure 1. Location of the 68th Street Dump/Industrial Enterprises property in Rosedale, Maryland.

mental Protection Agency National Priorities List in January 1999. An Expanded Site Inspection was completed on the site in 1995 and a Final Hazard Ranking System Report was completed in 1999 (Weston 1999).

### NOAA Trust Resources

The NOAA habitats of concern are Herring Run and its tributaries, Redhouse Run, Moores Run, and the Back River. Several anadromous and low-salinity fish and invertebrate species use the tidal streams that traverse the 68th Street Dump/Industrial Enterprises property and numerous estuarine species use the Back River (Weston 1999).

Herring, Moores, and Redhouse runs are tidally influenced in the vicinity of the property, with salinity ranging from 0 to 10 parts per thousand (ppt), depending upon season and precipitation. The tidal streams range from less than 10 to 35 m (< 33 to 115 ft) wide and 1 to 5 m (3 to 16 ft) deep. Sediments are primarily fine sands. The Back River is a shallow inlet of Chesapeake Bay with maximum depths of 10 m (33 ft) with substrate similar to the bay (USGS 1953). Salinity also fluctuates seasonally, averaging between 8 and 10 ppt (Majumdar et al. 1987).

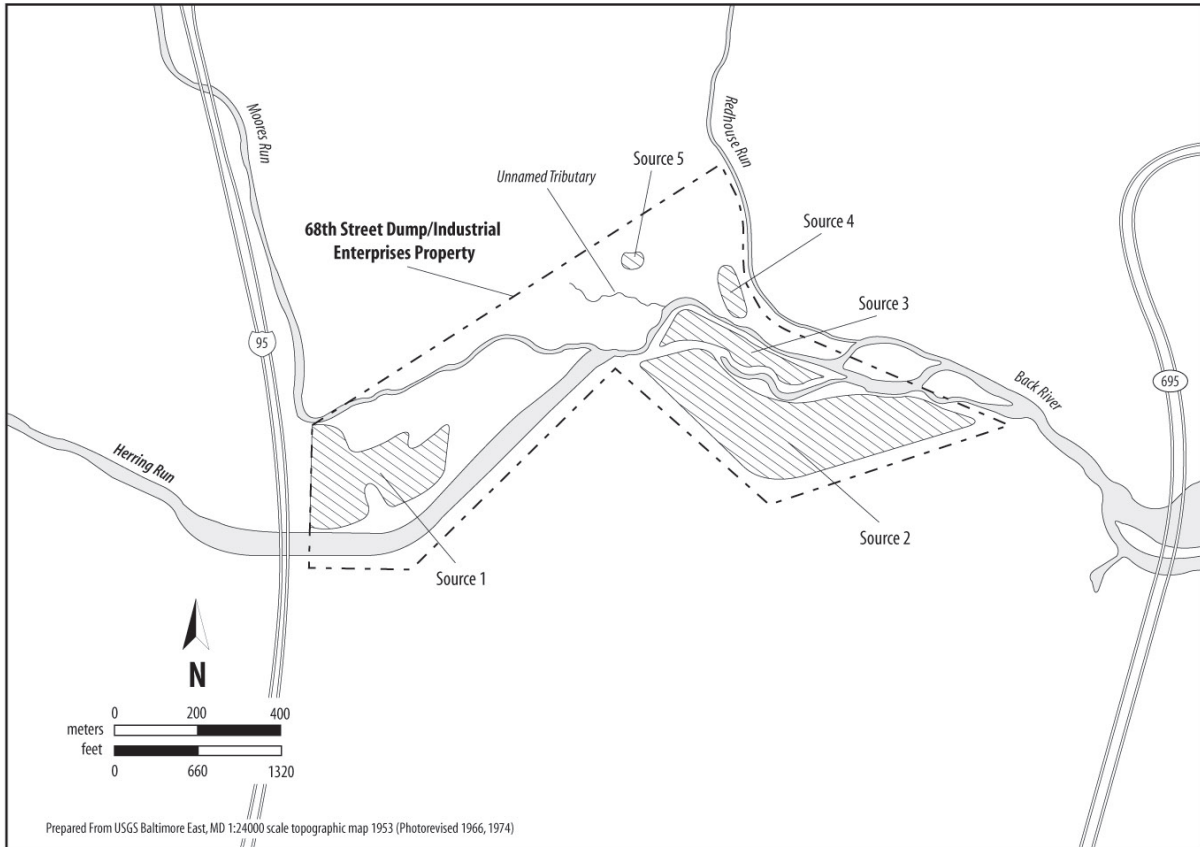


Figure 2. Detail of the 68th Street Dump/Industrial Enterprises property.

Estuarine forage fish tolerant of low salinities are found in the Herring, Moores, and Redhouse runs near the 68th Street Dump/Industrial Enterprises property. Species such as bay anchovy, sheepshead minnow, silversides, oyster toadfish, gobies, and killifishes are year-round residents in the tidal streams and Back River. Species such as bluefish, and the sciaenids (croaker, weakfish, seatrout, spot) are coastal spawners; eggs and larval stages drift offshore and juvenile stages migrate to Chesapeake Bay estuaries and inlets. Because many of these species are long-lived, juveniles may spend several years in estuaries like the Back River. Some adults species are found in the estuary seasonally (Stone et al. 1994).

Several anadromous fish, including alewife, blueback herring, white perch, yellow perch, and striped bass can be found in the Back River on a seasonal basis. Although yellow perch is a freshwater species in most areas of the country, they exhibit anadromous migrations in Chesapeake Bay (Stone et al. 1994). Herring Run has a small run of alewife spawning upstream of the site (Weston 1999).

Several invertebrates are present in the Back River including blue crab, grass shrimp, American oyster, and softshell clam. Juvenile and adult blue crab are abundant; mating and larval stages are also observed in the estuary although females usually migrate to coastal waters to brood and release eggs. Grass shrimp, oyster, and clams spend all life stages in the estuary (Stone et al. 1994).

Although recreational fisheries have been documented on the tidal streams near source areas on the 68th Street Dump/Industrial Enterprises property, the species harvested have not been reported. There are no commercial fisheries in the tidal streams or the Back River (Weston 1999).

### 32 EPA Region 3

Table 1. NOAA trust fish and invertebrate species in the Back River watershed (Majumdar et al. 1987; Stone et al. 1994; Weston 1999).

Species		Habitat Use			Fisheries	
		Spawning Ground	Nursery Ground	Adult Forage	Comm. Fishery	Recr. Fishery <sup>1</sup>
Common Name	Scientific Name					
<b>ESTUARINE SPECIES</b>						
Atlantic croaker	<i>Micropogonias undulatus</i>		◆	◆		◆
Atlantic menhaden	<i>Brevoortia</i>		◆	◆		
Bay anchovy	<i>Anchoa mitchilli</i>	◆	◆	◆		
Bluefish	<i>Pomatomus saltatrix</i>		◆	◆		◆
Cownose ray	<i>Rhinoptera bonasus</i>		◆	◆		
Gobies	<i>Gobiosoma spp.</i>	◆	◆	◆		
Hogchoker	<i>Trinectes maculatus</i>	◆	◆	◆		
Killifish	<i>Fundulus spp.</i>	◆	◆	◆		
Northern pipefish	<i>Syngnathus fuscus</i>	◆	◆	◆		
Oyster toadfish	<i>Opsanus tau</i>	◆	◆	◆		
Spotted seatrout	<i>Cynoscion nebulosus</i>		◆	◆		◆
Sheepshead minnow	<i>Cyprinodon variegatus</i>	◆	◆	◆		
Silversides	<i>Menidia spp</i>	◆	◆	◆		
Summer flounder	<i>Paralichthys dentatus</i>		◆	◆		◆
Spot	<i>Leiostomus xanthurus</i>		◆	◆		
Weakfish	<i>Cynoscion regalis</i>		◆	◆		
<b>ANADROMOUS/CATADROMOUS SPECIES</b>						
Alewife	<i>Alosa pseudoharengus</i>					
American eel	<i>Anguilla rostrata</i>			◆		
American shad	<i>Alosa sapidissima</i>		◆			
Blueback herring	<i>Alosa aestivalis</i>		◆			
Striped bass	<i>Morone saxatilis</i>		◆		◆	
White perch	<i>Morone americana</i>		◆		◆	
Yellow perch	<i>Perca flavescens</i>		◆			
<b>INVERTEBRATE SPECIES</b>						
American oyster	<i>Crassostrea virginica</i>	◆	◆	◆		◆
Bay shrimp	<i>Crangon septemspinosa</i>	◆	◆	◆		
Blue crab	<i>Callinectes sapidus</i>	◆	◆	◆	◆	◆
Blue mussel	<i>Mytilus edulis</i>	◆	◆	◆		
Grass shrimp	<i>Palaemonetes gugio</i>	◆	◆	◆		
Softshell clam	<i>Mya arenaria</i>	◆	◆	◆		

1: Recreational fisheries present in Chesapeake Bay near the Back River (Majumdar et al. 1987).

There have been commercial oyster harvests in Chesapeake Bay adjacent to the Back River (Majumdar et al. 1987).

The State of Maryland has issued a health advisory restricting the consumption of American eel and channel catfish from the Back River because of elevated concentrations of chlordane in edible fish tissue (USEPA 2000).

Table 2. Maximum concentrations of contaminants of concern to NOAA detected in soils and sediments on or near the 68th Street Dump Site/Industrial Enterprises property (Weston 1999).

Contaminant	Soils (mg/kg)		Stream Sediment (mg/l)				TEL/ERL <sup>b</sup> (mg/kg)
	Source Area	Mean U.S. <sup>a</sup>	Unnamed Tributary	Redhouse Run	Moore's Run	Herring Run	
Cadmium	100	0.06	ND	ND	ND	ND	0.596
Chromium	370	37	190	25	9.2	ND	37.3
Copper	5,300	17	190	8.8	7.0	74	34.0
Lead	3,000	16	590	30	43	230	35.0
Mercury	2.5	0.058	0.55	ND	ND	0.69	0.15
Nickel	220	13	110	8.3	5.7	52	18.0
Silver	18	0.05	ND	ND	ND	ND	1.0
Zinc	4,600	48	650	61	37	20	123.1
Benzo(a)pyrene	0.93	NA	ND	ND	ND	ND	0.0319
Benzo(g,h,i)perylene	0.92	NA	ND	ND	ND	ND	NA
Phenanthrene	14.0	NA	ND	ND	ND	ND	0.0419
Fluoranthene	20.0	NA	ND	ND	ND	0.9	0.111
Anthracene	4.0	NA	ND	ND	ND	ND	0.0853
Benzo(a)anthracene	11.0	NA	ND	ND	ND	ND	0.0317
Carbazole	ND	NA	ND	ND	ND	ND	NA
Total PCBs	0.83	NA	ND	ND	ND	ND	0.0227

NA: Guidelines not available

ND: Not detected; detection limits not available

a Shacklette and Boerngen (1984), except for silver and cadmium which are average concentrations in the earth's crust as reported by Lindsay (1979).

b TEL; Threshold Effects Level; Freshwater sediment value. Concentration below which adverse effects were rarely observed (geometric mean of the 15-percent concentration in the effects data set) as compiled by Smith et al. (1996). ERL; Effects range-low; Marine sediment value. Concentration representing the lowest 10 percentile for the data in which effects were predicted in studies compiled by Long et al. (1995). In low-salinity areas, the lowest of the two values is the screening guideline.

## Site-Related Contamination

Environmental investigations on the site have found contaminated soils and stream sediment. The Hazard Ranking Report identified approximately 20 soil borings and 13 sediment samples collected and evaluated on the property. Groundwater investigations have not been conducted at the site (Weston 1999).

The contaminants of concern to NOAA include the trace elements, polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). These substances have been measured in environmental media on the site at concentrations that exceed screening guidelines. Table 2 compares the maximum concentrations of contaminants in environmental media on the site to appropriate screening guidelines.

The maximum concentrations of cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc in subsurface soil samples exceeded soil screening guidelines in Source Areas 1, 3, 4, and 5. The greatest concentrations were observed in Source Area 1, where concentrations of copper, lead, and zinc were above 2,500 mg/kg; exceeding soil screening guidelines by one to two orders of magnitude. In Source Area 4, concentrations of lead and zinc were above 1,500 mg/kg, exceeding

### 34 EPA Region 3

guidelines by an order of magnitude. In Source Area 3, concentrations of chromium, copper, and zinc were lower but still exceeded screening guidelines.

Elevated concentrations of several PAHs were observed in soils of Source Area 4. The maximum concentrations of phenanthrene, fluoranthene, and benzo(a)anthracene all exceeded 10 mg/kg. The PAHs were generally below 1.0 mg/kg at the remaining source areas. PCBs were observed in soils at Source Areas 2 and 5 at concentrations between 0.47 and 0.83 mg/kg. Screening guidelines for soils are not available for the PAHs and PCBs.

Maximum concentrations of chromium, copper, lead, mercury, nickel and zinc in stream sediment exceeded screening guidelines. The greatest concentrations were observed in an unnamed tributary to Herring Run. In this stream chromium, copper, lead, and zinc concentrations ranged from 190 to 650 mg/kg. Concentrations of copper, lead, mercury, and nickel also exceeded sediment screening guidelines in Herring Run. In Redhouse and Moores runs, lead was the only contaminant detected at a concentration exceeding its screening guideline.

### References

- Lindsay, W.L. 1979. *Chemical Equilibria in Soils*. New York: John Wiley & Sons. 449 pp.
- Long, E.R., D.D. MacDonald, S.L. Smith and F.D. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. *Environmental Management* 19(1):81-97.
- Majumdar, S.K., L.W. Hall, Jr. and H.M. Austin. 1987. *Contaminant Problems and Management of Living Chesapeake Bay Resources*. Easton, Pennsylvania: The Pennsylvania Academy of Science.
- Shacklette, H.T. and J.G. Boerngen. 1984. Element concentrations in soils and other surficial materials of the conterminous United States. USGS Professional Paper 1720. Washington, D.C.: U.S. Geological Survey.
- Smith, S.L., D.D. MacDonald, K.A. Keenleyside, C.G. Ingersoll and L.J. Field. 1996. A preliminary evaluation of sediment quality assessment values for freshwater ecosystems. *Journal of Great Lakes Research* 22(3):624-638.
- Stone, S.L., T.A. Lowery, J.D. Field, C.D. Williams, D.M. Nelson, S.H. Jury, M.E. Monaco and L. Andreasen. 1994. Distribution and abundance of fishes and invertebrates in Mid-Atlantic estuaries. ELMR Rep. No. 12. Silver Spring, Maryland: NOAA/NOS Strategic Environmental Assessments Division.
- USEPA. 2000. Listing of Fish and Wildlife Consumption Advisories [webpage], U.S. Environmental Protection Agency, Office of Science and Technology. Available: [www.epa.gov/ost/fish/epafish.pdf](http://www.epa.gov/ost/fish/epafish.pdf)
- USGS. 1953. 68th Street Dump/Industrial Enterprises Site. 1:24,000. Denver: U.S. Geological Survey.
- Weston. 1999. Final hazard ranking system, 68th Street Dump/Industrial Enterprises. EPA DSN MD-174 (68th Street Dump); EPA DSN MD-184 (Industrial Enterprises). Boston: U.S. Environmental Protection Agency, Region I. 57 pp.