

NOAA Hazardous Waste Site Report

New Bedford Harbor (I-5)
New Bedford, Massachusetts
April 13, 1984

Location and Nature of Site:

New Bedford Harbor is located on the Acushnet River Estuary on Buzzards Bay approximately 55 miles south of Boston. The estuary is bounded by the towns of New Bedford on the western shore and Acushnet at the northern end (Figure 1). Extensive PCB contamination was documented in New Bedford in 1976 by a U.S. Environmental Protection Agency (EPA) survey. This survey revealed that two industrial electronic manufacturers, Aerovox and Cornell-Dubilier, were discharging wastewaters containing PCB's directly into the harbor and indirectly via the New Bedford Municipal Wastewater Treatment facility.

Aerovox has engaged in the manufacture of capacitors since 1947 and Cornell-Dubilier since 1929. Both companies made wide use of PCB compounds until the late 1970's. PCB formulations during this period included Aroclors 1242, 1016, 1254, and 1252. Record-keeping has been poor in both companies, but in addition to wastewater discharges, an estimated 500,000 pounds of PCB's in the form of liquid and solid wastes were disposed of in the New Bedford Municipal Landfill and an abandoned rock quarry (Sullivan's Ledge). PCB contamination of the area is believed to be widespread. In addition to contamination of the harbor and local landfills, oiling of roads with PCB-contaminated waste oil was widely practiced for years. Presumably, contaminated dredge material from the harbor was disposed of in a number of different locations. This includes over 82,000 cubic meters removed by the U.S. Army Corps of Engineers in constructing a turning basin, the bulk of which was deposited in Buzzard's Bay south of West Island.

Proximity of Chemical Hazard to Marine Resources:

At present, direct discharge of PCB-contaminated wastewater from Aerovox and Cornell-Dubilier has been significantly decreased. Both companies have undertaken programs to remove contaminated fill from their sites. The PCB-contaminated material in the New Bedford Municipal Landfill and the abandoned rock quarry on Sullivan's Ledge appears to be well contained on the site with little chance of contaminants entering the marine environment. Concern has also been expressed over organic contamination in leachate from the municipal landfill. Sampling to date indicates contamination of a wetland area downgradient from the landfill but no evidence of contamination of marine waters.

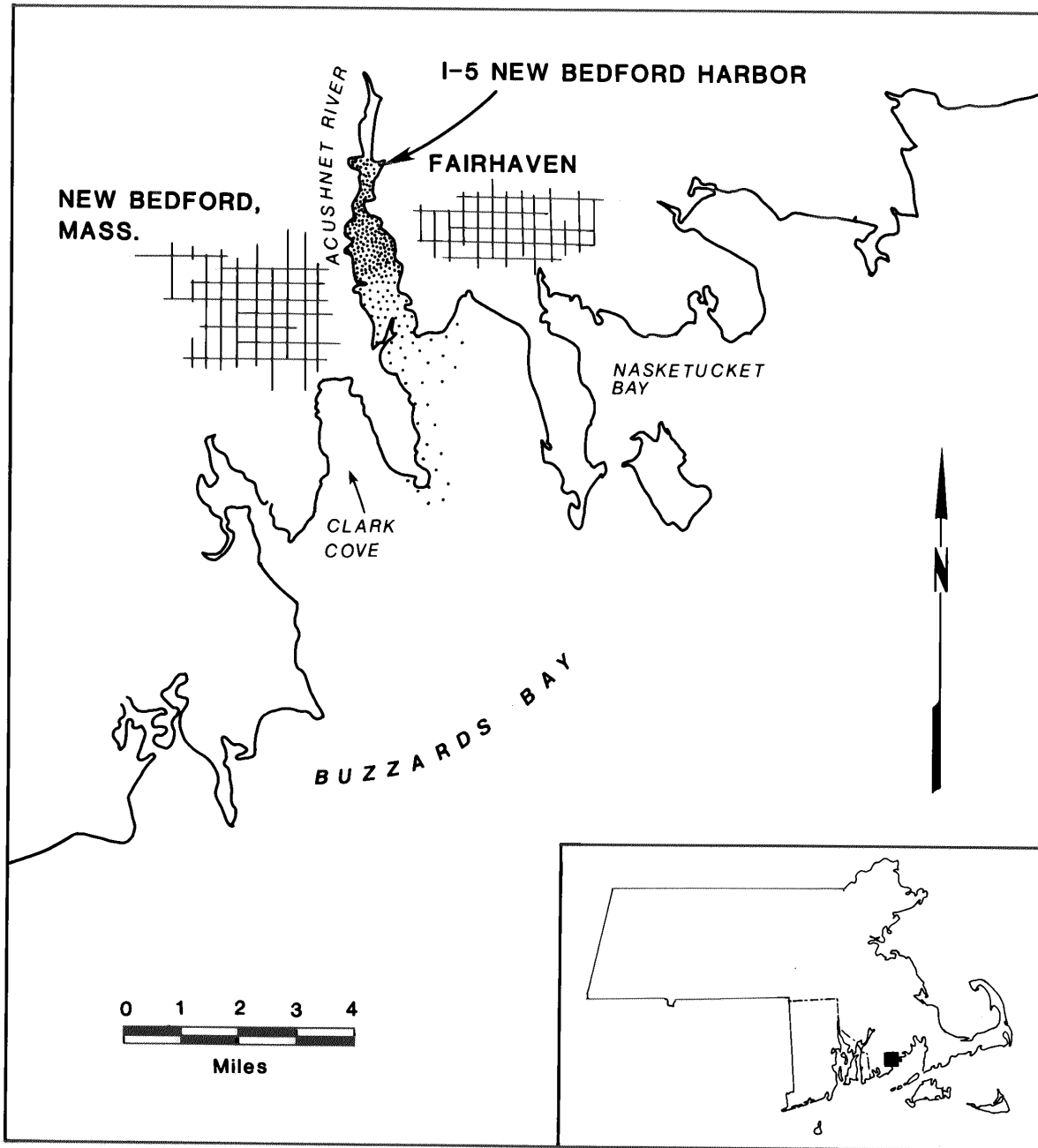


FIGURE 1. Site location.

Three primary sources of PCB contamination continue to threaten the marine environment: (1) residual contamination of mudflats and bottom sediments within the harbor from past wastewater discharges; (2) discharge from the municipal treatment facility as a result of residual contamination of the sewer line from Cornell-Dubilier; and (3) contaminated runoff from combined sewer/storm outfalls into New Bedford Harbor and Clark Cove.

A gradient of sediment PCB contamination exists from the northern end of the Acushnet estuary to the outer harbor as a result of the initial sources of contamination and the sediment trapping effect of a series of bridges and the hurricane barrier at the harbor mouth. The highest concentrations are north of the I-95 and Coggeshall St. bridges with sediment PCB concentrations in the 100 to 10,000 ppm range. Concentrations decrease down the estuary to less than 10 ppm PCB's in the sediment north of the hurricane barrier. Localized hot spots with PCB sediment concentration one to two orders of magnitude higher than the surrounding area have been identified in a number of areas, especially off the Aerovox and Cornell-Dubilier facilities and near the New Bedford municipal outfall off Clark Point. Sediment cleaned from the collector sewers in the vicinity of the Cornell-Dubilier plant (1983) contained 10,000 to 25,000 ppm PCB's. It has been estimated that 200 to 700 pounds of PCB's per year reach the harbor through the Clark Point outfall.

Marine Resources at Risk:

The widespread contamination of the Acushnet River estuary has resulted in the accumulation of PCB's in many marine species. New Bedford Harbor north of the hurricane barrier was closed to the harvesting of all finfish, shellfish, and lobster in 1979 by the Massachusetts Department of Public Health. The harvesting of lobsters and bottom-feeding finfish was closed for waters contained between Rickersons and Wilbur Point and an additional area south to Mishaum Point and Negro Ledge was closed to lobstering. Based on studies of heavy metal contamination associated with sediment transport out of the harbor, concern has been expressed that PCB contamination in New Bedford Harbor will be circulated out into Buzzard's Bay and compromise additional biological resources.

The New Bedford Harbor is a heavily developed area that supports some recreational fishing and anadromous fish runs (Table 1). Alewife and rainbow smelt migrate through New Bedford Harbor during runs up the Acushnet River to Long Pond. The Fort Phoenix State Beach is located on the harbor shoreline. The common tern, herring gull, and great blackback gull nest in this area during the spring and summer.

Table 1. Fishery Resources of New Bedford Harbor (1,2,3)

Finfish Species	Adult Habitat	Spawning Area	Nursery Area	Comm. Fish.	Rec. Fish.	Migr. Route
<u>Anadromous</u>						
Alewife			x			x
American shad	x					
Striped bass						x
Rainbow smelt		x			x	x
Blueback herring	x					
Atlantic herring	x					
<u>Non-anadromous</u>						
White perch	x				x	
Flounder	x				x	
Northern kingfish	x				x	
Weakfish	x				x	
Atlantic tomcod	x				x	
Black sea bass	x				x	
Atlantic menhaden	x				x	
Seatrout	x				x	
Atlantic herring	x				x	
Bluefish	x				x	
Scup	x				x	
Tautog	x				x	
<u>Shellfish</u>						
Hard clam	x	x			x	
Softshell clam	x	x			x	
Bay scallop	x	x			x	
Blue crab	x	x			x	

Summary of Site-Related Actions:

- 1976, EPA sampling of Aerovox, Cornell-Dubilier and the New Bedford Wastewater Treatment Plant reveals significant levels of PCB's in the industrial and municipal discharges. High levels of PCB's found in harbor sediments and marine life.
- 1976, EPA publishes report titled "New England PCB Waste Management Study" documenting New Bedford Municipal Landfill as disposal location for PCB's.
- 1977, Cornell-Dubilier ceases production of PCB containing capacitors. Dioctylphthalate fluid is substituted for PCB.
- 1978, Aerovox ceases use of PCB's in manufacturing processes.
- 1979, Massachusetts Department of Public Health closes areas of Buzzards Bay to the taking of lobsters, finfish, and shellfish because of PCB contamination.

- 1980, Massachusetts Department of Environmental Quality (DEQ) and EPA designate New Bedford Harbor PCB problem as a priority issue in the 1980 State-EPA Agreement.
- 1981, Aerovox and Cornell-Dubilier prepare limited site cleanup proposal following EPA inspections of their sites for compliance to Toxic Substances Control Act regulations concerning PCB's.
- 1981, DEQ nominates New Bedford Harbor as priority federal Superfund site.
- 1982, EPA Environmental Impact Office initiates regional New Bedford PCB Environmental Impact Study.
- 1983, EPA New Bedford Remedial Action Master Plan prepared by Weston, Inc.

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References:

1. National Marine Fisheries Service, 1974. Anglers Guide to the United States 2. Atlantic Coast.
2. U.S. Fish and Wildlife Service, 1980. Atlantic Coast Ecological Inventory.
3. Mayer, G., C. Parker, and M. Lockwood, 1982. Appraisal of the New Bedford Harbor (Massachusetts) PCB Situation and its Relevance to NOAA. NOAA Office of Marine Pollution Assessment Report, Seattle, Washington.
4. Weaver, G., 1982. PCB Pollution in the New Bedford, Massachusetts Area: A Status Report. Massachusetts Coastal Zone Management. June 1982.
5. Roy F. Weston, Inc., 1983. New Bedford Remedial Action Master Plan, Final Report. Prepared for U.S. Environmental Protection Agency. April 1982.
6. NUS Corporation, 1983. New Bedford Remedial Investigation/ Feasibility Study. Prepared for U.S. Environmental Protection Agency. November 1983.