

Manistique River/Harbor

Site Description

Manistique Harbor is located at the mouth of the Manistique River, which flows into Lake Michigan. The site extends from the mouth of the harbor, which is formed by a stone breakwater, upstream to a dam that impounds the river at a location about 1.4 miles above the breakwater. The harbor includes a federally authorized navigation channel. The federal channel was constructed by blasting the bedrock to the required channel depth and width. The authorized depth is 18 to 19 feet, but these depths have not been maintained due to a decline in commercial demand. The presence of PCBs in the river and harbor is the result of historical discharges from upstream paper mills and other industries.

The areas of concern include one 2-acre hot spot (Area B) and two other hot spots, one 2 acre area (Area C) in the river and one 15 acre area (Area D) in the 97-acre harbor which were originally scheduled to be capped, but the U.S. Environmental Protection Agency (EPA) decided to dredge contaminated sediment from the river and harbor. Dredging of the river and harbor was performed from 1994 to 2000 (EPA, 2007b), as documented in prior reports. After dredging was completed, clean sand was placed in the river and harbor in Fall 2000. Treated sand was to be placed over areas in the harbor with surface PCBs above 10 ppm. The first attempt caused resuspension of fine sediments and was discontinued. Subsequently, 1,400 cy of sand were broadcast into the river and were allowed to distribute naturally into the harbor.

Potential Responsible Parties

Manistique Papers, Inc., Edison Sault Electric, Warshawsky Brothers Iron and Metal, and the Old Mountain Company.

Threats and Contaminants

Polychlorinated biphenyls (PCBs) and heavy metals, such as cadmium, chromium, copper, lead, and nickel are the constituents of concern for this site.

Cleanup Approach Since 2004

No remedial actions have occurred since 2004, only monitoring.

Post-cleanup sampling of sediment, surface water and fish has been conducted by the EPA to track PCBs in the ecosystem. As stated in the 2006 Fact Sheet “at the completion of dredging in 2000, the average PCB level in the shallow mud (sediment) was 7.7 parts per million (ppm). After another round of sampling was done in 2004, the average PCB level had dropped below 1 ppm, greatly exceeding the EPA’s cleanup goal of 10 ppm” (EPA, 2006). According to the EPA, “results of surface water sampling done in August 2004 showed PCBs were not detected, and none of the 29 fish sampled contained PCBs above the Food and Drug Administration limit of 2 ppm (the limit set to protect human health). Before dredging occurred in the Manistique River and Harbor, the average PCB level in walleye filets from the river south of the highway bridge was 0.34 ppm. EPA predicted the dredging project would reduce the PCB level in walleye to 0.12 ppm, but the actual results showed PCB concentrations had dropped all the way to 0.056 ppm” (EPA, 2006). To be more specific “Mud samples were taken from 514 locations. Of those samples, 190 contained some level of PCBs. However, only eight samples were found at concentrations above EPA’s cleanup goal of 10 ppm. The average level of PCBs was 0.74 ppm, which was far less than expected. Surface water samples were taken from 40 locations and no PCBs were detected. Samples were taken from 29 adult fish. Of these, PCBs were found in 11 fish. PCB levels in 10 of those fish were above the Great Lakes Sport Fish Consumption Advisory of 0.05 ppm. This advisory is the recommended maximum amount of PCBs allowed in fish eaten by women of childbearing age, a level that was set to protect unborn children. No filets had PCB concentrations above the FDA limit of 2 ppm. The average level of PCBs in fish was 0.11 ppm. However, PCB levels remain high enough that there are still fish consumption advisories in effect for Manistique Harbor” (EPA, 2006).

The EPA’s sampling plan for the Manistique River and Harbor as of March 2006 was as follows “EPA will continue to take samples annually through 2008 to ensure the PCB levels continue to drop. Sampling done during this period will be more limited, focusing primarily on PCB hot spots where concentrations have been high. The first such round of sampling was done in August and September 2005. The results of the 2005 sampling in the hot spots found that the PCB levels remained very close to the levels found in the 2004 sampling in those areas. Another round of comprehensive sampling similar to the 2004 study is planned for 2008. After the 2008 sampling, EPA should have a better idea as to when the PCBs will no longer be a concern for the Manistique River and Harbor” (EPA, 2006).

In 2005, sampling focused on the “hot spots” where previously detected concentrations have been high. One hundred of the highest PCB concentration locations were

sampled plus 30 cluster locations. The average concentration from the 130 samples was 1.726 ppm PCBs. These levels remained very close to the levels found in the 2004 sampling in those areas (Sleboda, 2007).

In 2006, samples were taken from one hundred of the highest PCB concentration locations, the same “hot spots” sampled in 2005. The average concentration was 1.44 ppm PCBs (Sleboda, 2007).

A sampling event is scheduled for 2007 (Sleboda, 2007). This sampling event will be similar to the 2005 and 2006 sampling events that focused on surface sediments in “hot spots”.

A major sampling event is scheduled for 2008 (EPA, 2006). This event will be similar to the 2004 sampling event that focused on shallow mud sediments, surface water, and fish. After the 2008 sampling event, the EPA will reassess whether PCBs are a continuing concern in the Manistique River/Harbor (EPA, 2006).

Contractors performing the sampling on behalf of EPA included Westin (until 2006) and Sultrac (took over in 2007) (Sleboda, 2007).

Total sampling cost after dredging completion in 2000: \$800,000 (Sleboda, 2007).

Total cost of project since 2004: \$600,000 (Sleboda, 2007).

Total estimated cost through 2008: \$200,000 (Sleboda, 2007).

Resources/References:

Sleboda, Jena. EPA Remedial Project Manager Manistique River/Harbor. Contacted by phone April 17, 2007.

EPA. 2006a. *Sampling Results Show Cleanup is Working - Manistique Harbor and River Site*. March 2006. (<http://www.epa.gov/region5/sites/manistique/pdfs/manistique-factsheet200603.pdf>)

EPA. 2006b. *PCB Levels decline at U.P.'s Manistique Harbor*. April 2006. (<http://yosemite.epa.gov/opa/admpress.nsf/81dfbf1a0b671f3b85257018004ce441/6483f5d60b384fd48525714d00528aa0!OpenDocument>)

EPA. 2007a. Manistique River/Harbor Area of Concern. March 2007.
(<http://www.epa.gov/region5/sites/manistique/>)

EPA. 2007b. Manistique River Area of Concern. June 1, 2007.
(<http://www.epa.gov/glnpo/aoc/manistique.html>)