

## GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

<b>Project Name</b>	<b><u>SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)</u></b>	<b>ProjectID:</b> 05-14
<b>Last Updated:</b>	06/29/01	
<b>City:</b>	Sheboygan	
<b>County:</b>	Sheboygan	
<b>State:</b>	WI	
<b>Country:</b>	USA	
<b>Bodies of Water:</b>	Sheboygan River and Harbor (a tributary to Lake Michigan)	
<b>US EPA Region:</b>	V	
<b>Status (Active, Complete, or Monitoring Only):</b>	Complete.	
<b>Date On NPL:</b>	1986	
<b>ROD/ESD Date:</b>	None	
<b>Operable Unit:</b>	N/A	
<b>Areas of Concern (length or acres):</b>	Lower 14 miles of the Sheboygan River and Harbor. For the pilot study, 22 small hot spot areas in the upper 3.2 miles of river immediately downstream from the PRP site were targeted for interim action.	
<b>Other Characteristics of Water Body:</b>	280 sq. mi. drainage basin; average flow is 250 cfs.  Pilot study targeted the 3.2 miles of River immediately downstream from the PRP site: rocks and cobbles cover a majority of the riverbed with discrete sediment pockets (avg. 2 ft. deep) intermittently along the banks; average river width is 120 ft.; average water depths are 2-4 ft. Approximately 22,500 cy of sediment (including volume of cap/armor material) was estimated as present in the Upper River.	
<b>Contaminants of Concern:</b>	PCBs (1248/1254); metals; PAHs. PCBs throughout the Pilot study area; metals and PAHs primarily lower river and harbor only.	
<b>Source of Contamination:</b>	Four named PRPs - multiple sources, but likely Upper River (pilot study area) source is Tecumseh Products Company's die casting facility.	
<b>Contaminated Area Physical Characteristics:</b>	Upper River contained 48 discrete sediment areas (based on 1987 RI probing). Seventeen areas were excavated during ASRI Pilot Study and Removal Action. Five other areas were capped and armored. Water depths were in the range of 2 to 3 feet.  Upper River (1997 data): PCB conc. range from < 0.065 - 170 ppm (dup. 220) (full-core composites); arithmetic avg. of 10.4 ppm. Surface sediment concentrations (0-6") range from 0.2 - 38 ppm; arithmetic avg. of 3.7 ppm.  In 1992, fillets from Sheboygan River smallmouth bass exhibited PCB concentrations ranging between 0.4 and 17 ppm, while composite samples of whole carp exhibited PCB levels between 10.5 and 200 ppm.	
<b>Type of Regulatory Action:</b>	Superfund. Interim Pilot Study and Removal Action under Superfund.	
<b>Overall Status Summary:</b>	From 1989 to 1991, pilot study work was performed under a USEPA Administrative Order by Consent. Sediment removal was by mechanical dredging of 3,800 in-situ cy during a Pilot Study and a Removal Action. Removed Pilot Study sediment was placed in a Confined Treatment Facility (CTF) for biodegradation study purposes, and Removal Action sediment was placed in a Sediment Management Facility (SMF), both on PRP property, until a final disposal location could be identified. Also, nine discrete sediment areas totaling 1,200 square yards were	

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capped/armored during the Pilot Study. Five of the nine areas were capped/armored only and the remaining four areas were totally or partially capped/armored following removal, due to elevated post-removal PCB concentrations.

A revised FS submitted in April 1998 has been accepted by the Agency. The full-site ROD was released in May 2000 (see Project ID 05-30 for details).

**Remedial Action Planned:** ☒

**Risk Assessment:** ☒

**Remedial Action Implemented:** ☒

**Status of Dredging** ☐

**PRPs:** ☒

**Contacts:** ☒

**References:** ☒

**Modeling:** ☒

**Fishing Advisory:** ☒

**Key Conditions:** capping, dredging, extended (> 1 mile) river, Great Lakes AOC, hydrodynamic modeling, pilot/demonstration test, post monitoring, property access issues

## REMEDIAL ACTION PLANNED

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<b>Last Updated:</b>	06/29/01	
<b>Target Sediment Cleanup Standards (TSCS):</b>	PCB areas > 686 ppm in the most-contaminated hot spots.	
<b>How TSCS Established:</b>	Dermal risk associated with PCB concentrations > 686 ppm.	
<b>Target Bank and Floodplain Cleanup Levels (if applicable):</b>	N/A	
<b>Other Target:</b>	None	
<b>Environmental Sample Data References:</b>	<ul style="list-style-type: none"><li>• <b>Sediment:</b></li><li>• <b>Water:</b></li><li>• <b>Fish:</b></li></ul>	
<b>Estimated Target Volume:</b>	Approximately 2,600 cy (1989-90 Pilot Study). Note: areas actually removed/capped were different than outlined in Final ASRI Work Plan (7/90); approximately 2,500-3,000 cy (1991 Removal Action).	
<b>Planned Disposal Method:</b>	Future sediment management (i.e., beyond placement in a sediment management facility (steel tank) or confined treatment facility) will be consistent with the ROD (once developed).	
<b>Estimated Calendar Time to Implement Remedy:</b>		
<b>Estimated Time to Implement Remedy:</b>	Approximately 5 months (Pilot Study, 1989-90); Not available for Removal Action in 1991.	
<b>Estimated Cost to Implement Remedy:</b>	Not available	
<b>Stated Remedial Action Objectives (and Source):</b>	Pilot test of dredging and capping/armoring technologies. Removal of sediments containing highest PCB concentrations (i.e., > 686 ppm due to dermal exposure risk) (Administrative Order by Consent for Removal Action).	
<b>Measures of Success to be Used:</b>	Water column and fish monitoring results. Post-removal residual sediment sampling.	
<b>Planned Monitoring and Restoration:</b>	Water column monitoring during sediment removal/capping for turbidity/TSS and visual observation. Water column and caged fish monitoring pre-, during- and post-remediation.	
<b>Agency Position on Sediment Removal (and Source):</b>		

## ***RISK ASSESSMENT***

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<b><i>Project Name</i></b>	<b><i><u>SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)</u></i></b>	<b><i>ProjectID:</i></b> 05-14
<b><i>Last Updated:</i></b>	08/11/98	
<b><i>RA Type:</i></b>	Human Health and Ecological	
<b><i>RA Status:</i></b>	Complete	
<b><i>RA Objectives:</i></b>	see "RA Summary and Conclusions"	
<b><i>Company Performing RA:</i></b>	Blasland, Bouck & Lee, AsCI Corporation for ARCS Program, and Environ Corporation, respectively.	
<b><i>RA Reference Report:</i></b>	See "RA Summary and Conclusions"; References A-286 and A-287.	
<b><i>RA Summary and Conclusions:</i></b>	<p>Summary for Human Health and Ecological (qualitative):</p> <p>Reference: Endangerment Assessment, included in Remedial Investigation Enhanced Screening (RI/ES) Report, (BBL, May 1990).</p> <p>Objectives: Evaluates potential long-term threat to human health and the environment posed by existing conditions at the site.</p> <p>Conclusions:</p> <ul style="list-style-type: none"><li>• Three exposure scenarios resulted in risks outside of the US EPA's target risk range:<ul style="list-style-type: none"><li>- Ingestion of certain fish species which contain PCB concentrations greater than the FDA limit (2 ppm).</li><li>- Ingestion of certain waterfowl species which contain PCB concentrations greater than 4 ppm in edible portions.</li><li>- Dermal exposure to certain river sediments which contain the maximum observed PCB concentrations.</li></ul></li><li>• PCB residues in tissues of some fish and wildlife species suggest the possibility of adverse effects on these species, although there are no data indicating that such effects have occurred on Sheboygan River and Harbor populations. The suggestive information consists of laboratory data which indicate adverse effects on other species at tissue PCB concentrations similar to those observed in some Sheboygan species.</li></ul> <p>Summary for Baseline Human Health:</p> <p>Reference: Baseline Assessment of Human Health Risks Resulting From PCB Contamination at the Sheboygan River Wisconsin Area of Concern (by J. Crane of AsCI Corp. for ARCS Program; February 1993)</p> <p>Objective: Updates the Endangerment Assessment (May 1990); estimates carcinogenic risk from exposure to sediment-derived contaminants (i.e., PCBs).</p> <p>Conclusions:</p> <ul style="list-style-type: none"><li>• "Fish consumption should be avoided from the Sheboygan River AOC. Dermal exposure to floodplain soils appears to be of marginal concern under the reasonable maximum exposure scenario. The results of this risk assessment are not directly comparable to the human health endangerment assessment given in the RI/ES report because different exposure parameters were often used. However, some generalizations can be made between the two risk assessments.</li><li>• PCBs accounted for most (or all) of the carcinogenic risk.</li><li>• Concentrations of PCBs in fish tissues collected from the Sheboygan River have decreased over the past ten years. Although the carcinogenic risk for the typical exposure scenario has decreased by one or two orders of magnitude compared to the RI/ES endangerment assessment, the estimated risk levels still warrant a fish advisory for the AOC.</li></ul>	

## ***RISK ASSESSMENT***

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***Project Name***      ***SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)***

***ProjectID:*** 05-14

***Last Updated:*** 08/11/98

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- The RI/ES report indicated that the noncarcinogenic risk for humans either consuming fish or dermally exposing the feet to river bank soils was not significant. Likewise, if heavy metals had been measured in the fish and soil samples used in this risk assessment, the noncarcinogenic risks would probably have been below a level of concern."

Summary for Human Health:

Reference: Risk Assessment for the Sheboygan River, Sheboygan County, Wisconsin (by ENVIRON Corp., August 1995)

Objective: Evaluated the potential human health risks due to PCBs found in the Sheboygan River and the floodplain soils adjacent to the River (i.e., ingestion of fish and incidental ingestion/dermal contact with floodplain soils).

Conclusions:

- 90th Percentile Cancer Risks (fish consumption):
  - 4 x 10<sup>-5</sup> migratory species from Area 3 (Waelderhaus Dam to Sheboygan Harbor)
  - 5 x 10<sup>-6</sup> resident species from Area 3
  - 4 x 10<sup>-5</sup> resident species from Area 1 (Sheboygan Falls Dam to River Bend Dam)
- Ingestion of migratory fish from Area 3 poses no greater risk than does ingestion of resident fish from Area 1.
- 90th Percentile Total Cancer Risks (incidental ingestion of, and dermal contact with, floodplain soils):
  - 9 x 10<sup>-8</sup> adult receptors in Area 3
  - 2 x 10<sup>-8</sup> adult receptors in Area 2 (River Bend Dam to Waelderhaus Dam)
  - 2 x 10<sup>-7</sup> child receptors in Area 3
  - 2 x 10<sup>-7</sup> child receptors in Area 2
  - 4 x 10<sup>-7</sup> child receptors in Area 1
- These risk levels were within or below the 10<sup>-4</sup> to 10<sup>-6</sup> benchmark range deemed acceptable in the National Contingency Plan.

## REMEDIAL ACTION IMPLEMENTED

<b>Project Name:</b>	<b><u>SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)</u></b>	<b>ProjectID:</b> 05-14
<b>Last Updated:</b>	08/19/04	
<b>Physical Target:</b>	Remove Upper River sediments from hot spots containing the highest PCB concentrations (> 686 ppm up to 4,500 ppm based on dermal contact risk) under Pilot Study/Removal Action.	
<b>Goals:</b>	No stated cleanup goals in Pilot Study or in Removal Action.	
<b>Primary Contractor:</b>	Blasland, Bouck & Lee Environmental Services (BBLES)	
<b>Other Contractors:</b>	McMullen & Pitz; E&K Services (now Superior Services)	
<b>Generic Remediation Method:</b>	Mechanical dredging; wet excavation; capping	
<b>Equipment:</b>	A barge-mounted modified (sealed) clamshell and a backhoe in areas inaccessible to the clamshell; double-layer silt curtains (geomembrane lined with a geotextile) anchored to the river bottom.	
<b>Material Handling:</b>	Removed sediment was placed in sealed, gasketed boxes and transported to Tecumseh's facility and placed in a confined treatment facility or sediment management facility (steel tank) for further study or storage, respectively, prior to identification of a final disposal method.  Five areas were capped without any prior sediment removal. These areas exhibited maximum PCB concentrations ranging from 13 to 60 ppm in surface samples and non-detectable to 580 ppm in samples at depth. Four other areas were capped following pilot dredging activities due to elevated levels of PCBs remaining. These four areas exhibited residual PCB concentrations ranging from 7.7 to 295 ppm. The cap was designed to (1) prevent contaminant release via erosion; (2) retard contaminant flux; and (3) accommodate ongoing anaerobic dechlorination of PCBs in the sediment bed (Reference C-436 ). Each cap included, in ascending order, (1) a 150-mil geotextile fabric; (2) a one-foot layer of run-of-bank material placed over the geotextile fabric; (3) a second 150-mil layer of geotextile; (4) gabions placed both around the perimeter of the fabric and in the middle for anchoring; a one foot deep layer of cobbles was added to fill the gaps; and (5) nearshore run-of-bank material was added over the exposed gabions to fill voids and cover exposed wire.	
<b>Volume Removed:</b>	3,800 cy (in-situ) total (Pilot Study and Removal Action combined). Note: approximately 4,300 cy of sediment is currently contained in the sediment management facility (steel tank) or confined treatment facility due to excavation of "buffer" zone and material bulking.	
<b>Calendar Time:</b>	November 1989 - November 1991 (with winter shut-down typically Nov./Dec through April.)	
<b>Time To Implement:</b>	November 1989 - November 1991 (with winter shut-down typically Nov./Dec. - April); approximately 2 years total.	
<b>Total Cost:</b>	Approximately \$7 million, which included engineering/design of Pilot Study/Removal Action, construction of confined treatment and sediment management facilities, mob/demob, dredging, capping/armoring, silt curtain installation/removal, site restoration activities, and sampling during construction and for verification of residual sediment levels.	
<b>Dredging Cost:</b>	Approximately \$450/cy (includes actual dredging and install/remove silt curtains; does not include transport, stabilization, disposal of removed material or mobilization/demobilization).	
<b>Disposal of Sediment:</b>	Removed sediment was temporarily stored at the PRP site, either in a sediment management facility (steel tank) or in a confined treatment facility for bioremediation testing. Final disposal of the removed sediment was specified in the May 2000 ROD issued for the river. The ROD specified offsite removal and disposal of the sediment, which was completed by Tecumseh Products Company in Fall 2001 under a separate agreement. Sediment was disposed in the Onyx Hickory Meadows Landfill, Chilton, WI.	

## REMEDIAL ACTION IMPLEMENTED

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<b>Last Updated:</b>	08/19/04	
<b>Volume of Water:</b>	No dewatering; although dewatering (via stabilization) may be required prior to final disposal.	
<b>Method of Water Treatment:</b>	Construction water and excess rainwater in the CTF and SMF were treated in the on-site Contingency Water Treatment Facility (CWTF), which consists of flocculation/sedimentation, a multimedia filter, and granular activated carbon. Final discharge back to the Sheboygan River.	
<b>Water Discharge Limit:</b>	Non-detect using PCB method detection limit (< 0.05 ppb); < 50 ppm TSS (TSS limit subsequently revised to < 5 ppm).	
<b>Air Monitoring During Remediation:</b>	None performed	
<b>Water Monitoring During Remediation:</b>	Yes; pre-, during (daily)- and post-removal for TSS/turbidity; weekly during Pilot Study for total and dissolved PCBs. Acceptance criteria for turbidity was based on comparison of average upstream and downstream values; TSS was used for correlation with turbidity. Turbidity acceptance criteria was exceeded 8 times with no corrective actions implemented. Although no corrective actions were taken based on turbidity results, a few instances of leaking curtains were noted based on visual observations. PCB detected at one or more fixed sampling stations during 19 of 29 sampling events. Highest reported weekly PCB concentration during removal was 0.47 ppb. Majority of weekly sampling rounds exhibited PCBs at or near method detection limit.	
<b>Outcome:</b>	<p>Pre- and post-dredging sediment samples were obtained to monitor effectiveness of dredging and the need for additional dredge passes or subsequent capping/armoring. Pre-, during-, and post-construction water and caged/resident fish sampling were also performed.</p> <p>A partial summary of sediment sampling results for 14 hot spot areas follow:</p> <ul style="list-style-type: none"><li>• From two of the hot spot areas, 11 pre-dredge sediment samples exhibited 1.6 - 4300 ppm PCBs; after four dredge passes, two composite sediment samples exhibited 7.7 - 295 ppm PCBs.</li><li>• From three of the hot spot areas, 9 pre-dredge sediment samples exhibited ND - 1290 ppm; after two dredge passes, three composite sediment samples exhibited 39 - 148 ppm.</li><li>• From four of the hot spot areas, 9 pre-dredge sediment samples exhibited 0.1 - 550 ppm; after two dredge passes, six composite sediment samples exhibited 0.3 - 5 ppm.</li><li>• From four of the hot spot areas, 17 pre-dredge sediment samples exhibited 3.5 - 1100 ppm; after two dredge passes, nine composite sediment samples exhibited 0.6 - 28 ppm.</li><li>• From one of the hot spot areas, 6 pre-dredge sediment samples exhibited 0.1 - 750 ppm; after three dredge passes, one composite sediment sample exhibited 25 ppm.</li></ul> <p>For the 17 sediment removal areas, post-removal residual PCB concentrations (after 2-4 dredge passes) ranged from 0.3 ppm to 295 ppm, with pre-removal concentrations ranging from 0.1 - 4,300 ppm. Following removal, 4 of the 17 areas were totally or partially capped/armored due to elevated PCB concentrations. Five other areas were capped/armored only. Post-removal/capping water column monitoring was discontinued by the Agencies in 1993 due to very low or non-detect values for PCBs.</p> <p>Following completion of ASRI/Removal Action Pilot Study work, an annual Interim Monitoring Program (IMP) was developed to monitor caged and resident (smallmouth bass and white sucker) fish PCB concentrations over time. The IMP has been in-place since 1994.</p>	
<b>Restoration and Post-Monitoring:</b>	Post-removal/capping caged and resident fish (smallmouth bass and carp) monitoring was performed. Post-remediation caged fish results were statistically significantly lower than pre-remediation levels (1989). However, no clear or statistically significant spatial or temporal trends were apparent in the Interim Monitoring Program (IMP) data set for 1994-96.	

However, the 1998 IMP results revealed evidence of a previously unrecognized contribution from



## REMEDIAL ACTION IMPLEMENTED

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<b>Last Updated:</b>	08/19/04	

an external source of PCBs to the River. The evidence of this external source is the increase in total PCB levels and the change in the PCB composition to a higher molecular weight mixture. The 1998 mean PCB concentrations in white sucker and smallmouth bass were higher than in previous years at the Rochester Park location, although they were similar to previous years between the Kohler dams and in the Kiwanis Park vicinity. In fact, an apparent decreasing trend in white sucker and smallmouth bass PCB concentrations was noted in the vicinity of Kiwanis Park and between the Kohler dams. When the 1998 resident fish (white suckers and smallmouth bass) data from the Rochester park location were examined further, it was observed that the chromatograms for these data were strikingly different (i.e., exhibited a significant shift in PCB composition) from the chromatograms for the resident fish samples taken in other locations and the prior collection years from this location. In particular, the composition of PCBs in the 1998 fish samples taken at Rochester Park do not show the dechlorination pattern that is otherwise characteristic for fish and sediment samples in the River.

Based on the results of the 1998 IMP data, a site investigation was initiated at the Tecumseh Products Company facility to explore potential PCB sources to the River. This investigation was initiated at the end of March 1999 and continued through Fall 1999. Additional sampling and analysis have been proposed.

The 1999 IMP data for resident fish (smallmouth bass) indicate that mean PCB concentrations are the same or lower than concentrations observed in 1998 at all locations. Mean total PCB concentrations in Rochester Park (7.6 mg/kg) were not statistically significantly lower than concentrations reported in 1998 (10.7 mg/kg), or any of the previous ASRI or IMP sampling events. Mean total PCB concentrations in smallmouth bass from between the Kohler dams (2.0 mg/kg) were significantly lower than concentrations reported in 1998 (3.1 mg/kg), and lower than concentrations reported in earlier samples (1991-1995). At Kiwanis park, mean total PCB concentrations (2.0 mg/kg) were similar to mean total PCB concentrations reported in 1998 (1.9 mg/kg), and previous sampling events. There is no change in the 1999 chromatogram from 1998.

Smallmouth bass collected in the vicinity of Rochester Park in 1999 showed no apparent temporal trend in total PCB and lipid-normalized PCB concentrations. An apparent decreasing trend in smallmouth bass total PCB and lipid-normalized PCB concentrations is present between the Kohler dams. A similar decreasing trend is also apparent for total PCB concentrations in smallmouth bass collected in the vicinity of Kiwanis Park.

The results for the 1999 caged fish study show the total mean PCB concentrations at the four downstream locations (Station 2-5) ranged from 0.77 mg/kg to 1.2 mg/kg for the 3-week samples, and mean lipid-normalized concentrations ranged from 27 to 36 mg/kg lipid. Total mean PCB concentrations at the four downstream locations for the 6-week samples ranged from 2.1 mg/kg to 3.0 mg/kg, and lipid-normalized mean concentrations ranged from 80 mg/kg to 111 mg/kg lipid. At Station 2 (the only caged fish location continually monitored since 1989), the 1999 PCB mean total and lipid-normalized PCB concentrations were significantly less than 1989 baseline concentrations and no clear temporal trends are apparent in the IMP caged fish data set itself (1994-1999).

Additionally, no apparent trends in carp or bass data were observed other than an apparent short-term increase in PCB levels in 1990/91. No pre-remediation bass data is available and no discernible, consistent reduction in carp PCB concentrations has been observed.

Restoration following sediment removal in 1990/91 included stabilization of some bank areas with gabions, and restoring access and bank areas to natural conditions.

**Site-Specific Difficulties:** Shallow water conditions limited barge movement and volume of sediment that could be



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transported via barge (sometimes only a few cubic yards at a time). Excessive haul distances/times (in some cases just under 1 mile or 25-30 minutes one-way) due to private property landowner access issues. Large boulders and other obstructions in the River also limited barge movement. Water depth variations (high or low) due to weather conditions (e.g., flow overtopped silt curtains during high flow). Low production rates and high costs incurred during winter dredging in December 1989 due to ice.

### **Monitoring Data**

#### **References:**

- **Sediment**
- **Water:**
- **Fish:**

**POTENTIALLY RESPONSIBLE PARTIES**

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**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**PRP Name:** PRP INFORMATION NOT RELEASED

**PRPID:**

**Street Address:**

**City:**

**State:**

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## **KEY CONTACTS**

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***Project Name*** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

***ProjectID:*** 05-14

***Last Name:*** KEY CONTACT INFORMATION NOT RELEASED

***Contact ID:***

***First Name:***

***Title:***

***Company:***

***Address:***

***City:***

***State:***

***Postal Code:***

***Work Phone # :***

***Other Phone #:***

***Fax # :***

***Email Address:***

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## REFERENCES

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**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** A

**ReferenceID:** 118

**Title:** ***Wisconsin Department of Natural Resources Summary of Monitoring and Assessment of In-Stream Pilot Study Activities on the Sheboygan River and Harbor Superfund Site - 1994 (with transmittal letter)***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** Bruce J. Baker

**Preparer/Author Address:** State of Wisconsin  
Dept. of Natural Resources  
101 S. Webster Street, Box 7921  
Madison, WI 53707

**Prepared For:** US EPA Region V

**Date Published:** February 13, 1995

**Key Words and Phrases:** Concerns regarding armoring stability and protectiveness

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**Reference Type:** A

**ReferenceID:** 154

**Title:** ***Information Summary, Area of Concern: Sheboygan River, Wisconsin - ARCS (Assessment and Remediation of Contaminated Sediments) (Misc. Paper EL-91-6)***

**Location:** AEM

**Category:** Contaminated Sediments: Overview of Issues

**Prepared by/Author:** J.G. Skogerboe, C.R. Lee, D.L. Brandon, J.W. Simmers and H.E. Tatem

**Preparer/Author Address:** U.S. Army Corps of Engineers  
U.S. Army Engineer Waterways Experiment Station  
Environmental Laboratory  
3909 Halls Ferry Road  
Vicksburg, MS 39180-6199

**Prepared For:** US EPA, Great Lakes National Program Office

**Date Published:** March 1991

**Key Words and Phrases:**

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## REFERENCES

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**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** A  
**Title:** *Sediment Transport Study*  
**Location:** BBL  
**Category:** Site Update  
**Prepared by/Author:** Blasland, Bouck & Lee, Inc  
**Preparer/Author Address:** 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214  
**Prepared For:** Tecumseh Products Company  
**Date Published:** November 1996; April 1998, Revised  
**Key Words and Phrases:**

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**ReferenceID:** 218

**Reference Type:** A  
**Title:** *Important Health Information for People Eating Fish from Wisconsin Waters; Pub. No. FH824 97*  
**Location:** BBL  
**Category:** Site Update  
**Prepared by/Author:** Wisconsin Department of Health and Wisconsin Department of Natural Resources  
**Preparer/Author Address:**  
**Prepared For:** General Public  
**Date Published:** February 1997  
**Key Words and Phrases:**

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**ReferenceID:** 219

**Reference Type:** A  
**Title:** *Remedial Investigation Enhanced Screening (RI/ES) - Endangerment Assessment*  
**Location:** BBL  
**Category:** Contaminated Sediments: Investigation/Delineation  
**Prepared by/Author:** Blasland, Bouck & Lee, Inc  
**Preparer/Author Address:** 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214  
**Prepared For:**  
**Date Published:** May 1990  
**Key Words and Phrases:**

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**ReferenceID:** 286

## REFERENCES

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**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** A

**ReferenceID:** 287

**Title:** ***Baseline Assessment of Human Health Risks Resulting From PCB Contamination at the Sheboygan River Wisconsin Area of Concern***

**Location:** BBL

**Category:** Risk Assessment

**Prepared by/Author:** J. Crane

**Preparer/Author Address:** ASci Corporation

**Prepared For:** ARCS Program

**Date Published:** February 1993

**Key Words and Phrases:**

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**Reference Type:** A

**ReferenceID:** 293

**Title:** ***Alternative Specific Remedial Investigation Report Sheboygan River and Harbor - Volume 1 of 4***

**Location:** AEM

**Category:** Contaminated Sediments: Investigation/Delineation

**Prepared by/Author:** Blasland, Bouck & Lee, Inc

**Preparer/Author Address:** 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214

**Prepared For:** Tecumseh Products Company

**Date Published:** October 1995

**Key Words and Phrases:**

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## REFERENCES

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**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** A

**ReferenceID:** 294

**Title:** ***Alternative Specific Remedial Investigation Report Sheboygan River and Harbor - Volume 2 of 4***

**Location:** AEM

**Category:** Contaminated Sediments: Investigation/Delineation

**Prepared by/Author:** Blasland, Bouck & Lee, Inc

**Preparer/Author Address:** 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214

**Prepared For:** Tecumseh Products Company

**Date Published:** October 1995

**Key Words and Phrases:**

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**Reference Type:** A

**ReferenceID:** 364

**Title:** ***Fish Consumption Exposure Assessment Study, Sheboygan Harbor and River***

**Location:** AEM

**Category:** Fish/Biota

**Prepared by/Author:** Wisconsin Department of Health and Social Services

**Preparer/Author Address:** Madison, WI

**Prepared For:** General Public

**Date Published:** May 1998

**Key Words and Phrases:**

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**Reference Type:** A

**ReferenceID:** 399

**Title:** ***Feasibility Study for the Sheboygan River & Harbor Site***

**Location:** BBL

**Category:** RI/FS

**Prepared by/Author:** Blasland, Bouck & Lee, Inc.

**Preparer/Author Address:** 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214

**Prepared For:** Tecumseh Products Company

**Date Published:** April 1998

**Key Words and Phrases:**

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## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** A **ReferenceID:** 672  
**Title:** **1999 Annual Interim Monitoring Program Report**  
**Location:** BBL  
**Category:** Monitoring, Post  
**Prepared by/Author:** Blasland, Bouck, & Lee, Inc  
**Preparer/Author Address:** 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214  
**Prepared For:**  
**Date Published:** February 2000  
**Key Words and Phrases:**

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**Reference Type:** B **ReferenceID:** 198  
**Title:** **Letter re: Sheboygan River and Harbor Superfund Site River Watch Article ( Winter 1997 )**  
**Location:** AEM  
**Category:** Site Update  
**Prepared by/Author:** Steven J. Padovani, RPM  
**Preparer/Author Address:** US EPA Region V  
Chicago, IL 60604  
**Prepared For:** Scenic Hudson, Poughkeepsie, NY  
**Date Published:** March 12, 1997  
**Key Words and Phrases:**

---

**Reference Type:** B **ReferenceID:** 272  
**Title:** **Technical Limitations / Environmental Issues Associated with Sediment Removal (New Bedford Harbor; Sheboygan River)**  
**Location:** AEM  
**Category:** Dredging: Contaminated  
**Prepared by/Author:** Blasland, Bouck & Lee, Inc  
**Preparer/Author Address:** 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214  
**Prepared For:**  
**Date Published:** June 28, 1995  
**Key Words and Phrases:**

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## REFERENCES

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**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** B

**ReferenceID:** 367

**Title:** ***Letter: Ullrich (EPA Region V) to Congressman Sensenbrenner***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** David A. Ullrich, Acting Regional Administrator

**Preparer/Author Address:** US EPA Region V

**Prepared For:** Congressman F. James Sensenbrenner

**Date Published:** December 11, 1998

**Key Words and Phrases:**

---

**Reference Type:** B

**ReferenceID:** 782

**Title:** ***Realizing Remediation I - Great Lakes Contaminated Sediments  
Sheboygan Harbor and River Superfund Site - Tecumseh Products  
Company  
(see Reference A-905)***

**Location:** AEM

**Category:** Dredging: Remedial (Contaminated Sediments)

**Prepared by/Author:** US EPA Great Lakes National Program Office (GLNPO)

**Preparer/Author Address:** 77 West Jackson Boulevard (G-17J)  
Chicago, IL 60604

**Prepared For:** General Public

**Date Published:** August 1, 2002

**Key Words and Phrases:**

---

## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** B

**ReferenceID:** 842

**Title:** ***Realizing Remediation II - Updated Summary:  
Sheboygan River and Harbor Superfund Site (Project 1)  
(see Reference A-907)***

**Location:** AEM

**Category:** Dredging: Remedial (Contaminated Sediments)

**Prepared by/Author:** US EPA Great Lakes National Program Office (GLNPO)

**Preparer/Author  
Address:** 77 West Jackson Boulevard (G-17J)  
Chicago, IL 60604

**Prepared For:** General Public

**Date Published:** July 2000

**Key Words and  
Phrases:**

---

**Reference Type:** B

**ReferenceID:** 1136

**Title:** ***Chilton Landfill Proves to be Safe Choice for PCB Disposal***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** Susan Pastor

**Preparer/Author  
Address:** US EPA

**Prepared For:** Fox River Current

**Date Published:** July/August 2004

**Key Words and  
Phrases:**

---

**Reference Type:** C

**ReferenceID:** 80

**Title:** ***Sheboygan River cleanup eyed***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Superfund Week

**Date Published:** March 5, 1992

**Key Words and  
Phrases:**

---

## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** C

**ReferenceID:** 81

**Title:** ***EPA Tests Sediment Cleanup Methods in Sheboygan, Wisconsin***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Hazardous Waste Report

**Date Published:** September 7, 1992

**Key Words and  
Phrases:**

---

**Reference Type:** C

**ReferenceID:** 222

**Title:** ***Sheboygan Harbor cleanup plans advance***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** June 24, 1994

**Key Words and  
Phrases:**

---

**Reference Type:** C

**ReferenceID:** 223

**Title:** ***Sheboygan River sediment cleanup plan near***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** January 12, 1996

**Key Words and  
Phrases:**

---

## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** C

**ReferenceID:** 224

**Title:** *Sheboygan River cleanup plan due in fall*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** July 12, 1996

**Key Words and  
Phrases:**

---

**Reference Type:** C

**ReferenceID:** 225

**Title:** *Sheboygan sediment plan delayed*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** November 1, 1996

**Key Words and  
Phrases:**

---

**Reference Type:** C

**ReferenceID:** 226

**Title:** *Sheyboygan (sic) River FS almost done*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** March 7, 1997

**Key Words and  
Phrases:**

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## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** C

**ReferenceID:** 436

**Title:** ***The Sheboygan River Case Study Tests Armoring and Dredging***

**Location:** AEM

**Category:** Capping/Placement

**Prepared by/Author:** Mark P. Brown and Dawn S. Foster

**Preparer/Author** Blasland, Bouck & Lee, Inc.

**Address:** 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214

**Prepared For:** Unknown

**Date Published:** 1991

**Key Words and  
Phrases:**

---

**Reference Type:** C

**ReferenceID:** 437

**Title:** ***EPA starts PCB removal***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** June 28, 1991

**Key Words and  
Phrases:**

---

**Reference Type:** C

**ReferenceID:** 438

**Title:** ***Great Lakes cleanups to get pilot tests***

**Location:** AEM

**Category:** Contaminated Sediments: Treatment Technologies

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** August 9, 1991

**Key Words and  
Phrases:** Buffalo River; Ashtabula River; Saginaw River; Sheboygan River; Grand  
Calumet River

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## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** C

**ReferenceID:** 441

**Title:** ***Toxic Polychlorinated Biphenyl Congeners in Sheboygan River (USA) Sediments***

**Location:** AEM

**Category:** Contaminated Sediments: Investigation/Delineation

**Prepared by/Author:** W. Sonzogni, L. Maack, T. Gibson, and J. Lawrence

**Preparer/Author Address:** Laboratory of Hygiene and Water Chemistry Program  
University of Wisconsin  
Madison, WI 53706

**Prepared For:** Bull. Environ. Contam. Toxicol. (1991) 47:398-405

**Date Published:** 1991

**Key Words and Phrases:**

---

**Reference Type:** D

**ReferenceID:** 19

**Title:** ***Tainted sediment remains a threat; Consultant: Sludge Containment Failing***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** Press Release (AP)

**Preparer/Author Address:**

**Prepared For:** The Madison (WI) Wisconsin State Journal

**Date Published:** August 24, 1994

**Key Words and Phrases:**

---

**Reference Type:** E

**ReferenceID:** 21

**Title:** ***Carcinogenic Human Health Risks Associated with Consuming Contaminated Fish from Five Great Lakes Areas of Concern***

**Location:** AEM

**Category:** Risk Assessment

**Prepared by/Author:** Judy L. Crane

**Preparer/Author Address:** EVS Consultants  
195 Pemberton Avenue  
North Vancouver, BC

**Prepared For:** Journal of Great Lakes Research 22 (3): 653-668

**Date Published:** 1996

**Key Words and Phrases:**

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## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** E

**ReferenceID:** 238

**Title:** ***Remediation of Sediments by Dredging: Methods and Case Histories***

**Location:** AEM

**Category:** Dredging: Remedial (Contaminated Sediments)

**Prepared by/Author:** Bradford S. Cushing

**Preparer/Author Address:** AEM, Inc.

**Prepared For:** WODCON XV Conference, Las Vegas, NV

**Date Published:** June 28 - July 2, 1998

**Key Words and Phrases:**

---

**Reference Type:** G

**ReferenceID:** 7

**Title:** ***Overheads Re: Dredging Successes (including Sheboygan River)***

**Location:** AEM

**Category:** Dredging: Remedial (Contaminated Sediments)

**Prepared by/Author:** Jim Hahnenberg

**Preparer/Author Address:** US EPA Region V  
Chicago, IL

**Prepared For:** Presentation to Fox River PRP Group

**Date Published:** November 1997

**Key Words and Phrases:**

---

**Reference Type:** G

**ReferenceID:** 15

**Title:** ***Dredging Successes***

**Location:** AEM

**Category:** Dredging: Remedial (Contaminated Sediments)

**Prepared by/Author:** Jim Hahnenberg

**Preparer/Author Address:** US EPA Region V  
Chicago, IL

**Prepared For:** Fox River PRPs

**Date Published:** November 13, 1997

**Key Words and Phrases:**

---

## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** L  
**Title:** **Memo re: Sheboygan River**  
**Location:** AEM  
**Category:** Site Update  
**Prepared by/Author:** AEM, Inc.  
**Preparer/Author Address:** Malvern, PA 19355  
**Prepared For:** Internal file  
**Date Published:** August 13, 1997  
**Key Words and Phrases:**

---

**ReferenceID:** 3

**Reference Type:** L  
**Title:** **Memo re: Sheboygan River**  
**Location:** AEM  
**Category:** Site Update  
**Prepared by/Author:** AEM, Inc.  
**Preparer/Author Address:** Malvern, PA 19355  
**Prepared For:** Internal file  
**Date Published:** September 26, 1997  
**Key Words and Phrases:**

---

**ReferenceID:** 12

**Reference Type:** L  
**Title:** **Memo re: Precedent for Extended Sediment Remediation in Rivers and Streams**  
**Location:** AEM  
**Category:** Contaminated Sediments: Overview of Issues  
**Prepared by/Author:** AEM, Inc.  
**Preparer/Author Address:** Malvern, PA 19355  
**Prepared For:** Distribution  
**Date Published:** August 15, 2000  
**Key Words and Phrases:**

---

**ReferenceID:** 90

## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** L

**ReferenceID:** 118

**Title:** ***Sediment Remediation Projects in the U.S. Using Capping or Burial***

**Location:** AEM

**Category:** Capping/Placement

**Prepared by/Author:** AEM, Inc.

**Preparer/Author  
Address:**

**Prepared For:** Distribution

**Date Published:** September 25, 2001

**Key Words and  
Phrases:**

---

**Reference Type:** L

**ReferenceID:** 206

**Title:** ***Results of Research for Short-Term Impacts on Sediment and Fish PCB Concentrations Due to Sediment Removal***

**Location:** AEM

**Category:** Fish/Biota

**Prepared by/Author:** AEM, Inc.

**Preparer/Author  
Address:**

**Prepared For:** File

**Date Published:** March 19, 2001

**Key Words and  
Phrases:**

---

## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** M

**ReferenceID:** 161

**Title:** ***Bench-Scale Evaluation of Bioremediation for the Treatment of Sediments from the Ashtabula, Buffalo, Saginaw and Sheboygan Rivers***

**Location:** AEM

**Category:** Contaminated Sediments: Treatment Technologies

**Prepared by/Author:** W. Jack Jones, Rochelle Araujo, and John E. Rogers

**Preparer/Author Address:** US EPA NERL-Athens  
National Exposure Research Laboratory  
Ecosystems Research Division  
Athens, GA

**Prepared For:** US EPA  
Great Lakes National Program Office  
Assessment and Remediation of Contaminated Sediments (ARCS) Program  
Chicago, IL 60604,

**Date Published:** Undated

**Key Words and Phrases:**

---

**Reference Type:** M

**ReferenceID:** 256

**Title:** ***Environmental Dredging: An Evaluation of Its Effectiveness in Controlling Risks***

**Location:** AEM

**Category:** Contaminated Sediments: Overview of Issues

**Prepared by/Author:** Blasland, Bouck & Lee, Inc.

**Preparer/Author Address:** 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214

**Prepared For:** General Electric Company

**Date Published:** August 2000

**Key Words and Phrases:**

---

## REFERENCES

---

**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)**

**ProjectID:** 05-14

**Reference Type:** M

**ReferenceID:** 347

**Title:** ***Memo re: Summary of the Impacts of Remedial Dredging***

**Location:** AEM

**Category:** Miscellaneous

**Prepared by/Author:** Quantitative Environmental Analysis, LLC.

**Preparer/Author  
Address:**

**Prepared For:** Internal Distribution

**Date Published:** February 27, 2001

**Key Words and  
Phrases:**

---

**Reference Type:** M

**ReferenceID:** 418

**Title:** ***Results of Contaminated Sediment Cleanups Relevant to the  
Hudson River:  
Sheboygan River, Wisconsin***

**Location:** AEM

**Category:** Contaminated Sediments: Overview of Issues

**Prepared by/Author:** Joshua Cleland

**Preparer/Author  
Address:**

**Prepared For:** Scenic Hudson  
9 Vassar Street  
Poughkeepsie, NY 12601

**Date Published:** October 2000

**Key Words and  
Phrases:**

---

**Reference Type:** R

**ReferenceID:** 7

**Title:** ***Letter to PRP re: Case Histories: Contaminated Sediment Sites***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** AEM, Inc.

**Preparer/Author  
Address:** Malvern, PA 19355

**Prepared For:** Foley & Lardner, submitted to

**Date Published:** August 14, 1998

**Key Words and  
Phrases:**

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## MODELING

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<b>Project Name:</b>	<b><u>SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)</u></b>	<b>ProjectID:</b> 05-14
<b>Last Updated:</b>	08/11/98	
<b>Modeling Performed:</b>	Sediment transport modeling (HEC-6)	
<b>Modeling Objectives:</b>	Estimate, to the extent possible, the role of natural processes (e.g., sediment deposition) in burial of sediments within the Inner Harbor and providing information to help assess the feasibility of natural capping/recovery in the Harbor.	
<b>Modeling Description:</b>	HEC-6 used to model sediment transport in the Inner Harbor; not intended to be a chemical fate and transport study.	
<b>Company Performing Modeling:</b>	Blasland, Bouck & Lee, Inc.	
<b>Modeling Status:</b>	Revised in 4/98 (Appendix to revised FS submitted to USEPA/WDNR 4/98).	
<b>Modeling Summary:</b>	<p>Model results, along with actual data, demonstrated ongoing sedimentation within the Inner Harbor is burying the deeper PCB- and metals-containing sediments with sediment much lower in PCB concentration (1-4 ppm).</p> <p>Also, HEC-2 modeling completed for confined treatment facility (CTF) design, performed by Blasland, Bouck &amp; Lee. The CTF is within the 100-year floodplain. The HEC-2 model was used to create hydraulic simulation of the Sheboygan River to evaluate primary hydraulic variables such as river velocity, depth, and the extent of inundation during a flood event.</p>	

## ***FISH ADVISORIES***

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***Project Name*** ***SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)***

***ProjectID:*** 05-14

***Advisory:*** Sheboygan River

***AdvisoryID:*** 689

***Extent:*** From the dam at Sheboygan Falls to the mouth

***Pollutant:*** PCBs (total)

***Species:*** bass-rock

***Population:*** NCGP

***Population Definition:*** No Consumption-General Population: Advise against consumption by the general population.

***Advisory Type:*** River

***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active

***Date Rescinded:***

***Contact Name:*** Candy Schrank

***Contact Number:*** 608-267-7614

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***Advisory:*** Sheboygan River

***AdvisoryID:*** 690

***Extent:*** From the dam at Sheboygan Falls to the mouth

***Pollutant:*** PCBs (total)

***Species:*** bass-rock

***Population:*** NCSP

***Population Definition:*** No Consumption-Subpopulation(s): Advises against consumption for populations that are potentially at greater risk, e.g., pregnant or nursing women, and small children.

***Advisory Type:*** River

***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active

***Date Rescinded:***

***Contact Name:*** Candy Schrank

***Contact Number:*** 608-267-7614

---

***Advisory:*** Sheboygan River

***AdvisoryID:*** 691

***Extent:*** From the dam at Sheboygan Falls to the mouth

***Pollutant:*** PCBs (total)

***Species:*** bass-smallmouth

***Population:*** NCGP

***Population Definition:*** No Consumption-General Population: Advise against consumption by the general population.

***Advisory Type:*** River

***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active

***Date Rescinded:***

***Contact Name:*** Candy Schrank

***Contact Number:*** 608-267-7614

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## ***FISH ADVISORIES***

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***Project Name*** ***SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)***

***ProjectID:*** 05-14

<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 692
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	bass-smallmouth	
<b><i>Population:</i></b>	NCSP	
<b><i>Population Definition:</i></b>	No Consumption-Subpopulation(s): Advises against consumption for populations that are potentially at greater risk, e.g., pregnant or nursing women, and small children.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614
<hr/>		
<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 693
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	carp-common	
<b><i>Population:</i></b>	NCGP	
<b><i>Population Definition:</i></b>	No Consumption-General Population: Advise against consumption by the general population.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614
<hr/>		
<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 694
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	carp-common	
<b><i>Population:</i></b>	NCSP	
<b><i>Population Definition:</i></b>	No Consumption-Subpopulation(s): Advises against consumption for populations that are potentially at greater risk, e.g., pregnant or nursing women, and small children.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614

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## ***FISH ADVISORIES***

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***Project Name*** ***SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)***

***ProjectID:*** 05-14

***Advisory:*** Sheboygan River ***AdvisoryID:*** 695  
***Extent:*** From the dam at Sheboygan Falls to the mouth  
***Pollutant:*** PCBs (total)  
***Species:*** catfish  
***Population:*** NCGP  
***Population Definition:*** No Consumption-General Population: Advise against consumption by the general population.

***Advisory Type:*** River ***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active ***Date Rescinded:***

***Contact Name:*** Candy Schrank ***Contact Number:*** 608-267-7614

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***Advisory:*** Sheboygan River ***AdvisoryID:*** 696  
***Extent:*** From the dam at Sheboygan Falls to the mouth  
***Pollutant:*** PCBs (total)  
***Species:*** catfish  
***Population:*** NCSP  
***Population Definition:*** No Consumption-Subpopulation(s): Advises against consumption for populations that are potentially at greater risk, e.g., pregnant or nursing women, and small children.

***Advisory Type:*** River ***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active ***Date Rescinded:***

***Contact Name:*** Candy Schrank ***Contact Number:*** 608-267-7614

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***Advisory:*** Sheboygan River ***AdvisoryID:*** 697  
***Extent:*** From the dam at Sheboygan Falls to the mouth  
***Pollutant:*** PCBs (total)  
***Species:*** crappie-black  
***Population:*** NCGP  
***Population Definition:*** No Consumption-General Population: Advise against consumption by the general population.

***Advisory Type:*** River ***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active ***Date Rescinded:***

***Contact Name:*** Candy Schrank ***Contact Number:*** 608-267-7614

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## ***FISH ADVISORIES***

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***Project Name*** ***SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)***

***ProjectID:*** 05-14

<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 698
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	crappie-black	
<b><i>Population:</i></b>	NCSP	
<b><i>Population Definition:</i></b>	No Consumption-Subpopulation(s): Advises against consumption for populations that are potentially at greater risk, e.g., pregnant or nursing women, and small children.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614
<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 699
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	pike-northern	
<b><i>Population:</i></b>	NCGP	
<b><i>Population Definition:</i></b>	No Consumption-General Population: Advise against consumption by the general population.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614
<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 700
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	pike-northern	
<b><i>Population:</i></b>	NCSP	
<b><i>Population Definition:</i></b>	No Consumption-Subpopulation(s): Advises against consumption for populations that are potentially at greater risk, e.g., pregnant or nursing women, and small children.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614

## ***FISH ADVISORIES***

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***Project Name*** ***SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)***

***ProjectID:*** 05-14

<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 701
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	salmon-chinook	
<b><i>Population:</i></b>	RGP	
<b><i>Population Definition:</i></b>	Restricted Consumption-General Population: Advises the general population to restrict the size of the organisms and/or the frequency of meals consumed.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614
<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 702
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	salmon-chinook	
<b><i>Population:</i></b>	RSP	
<b><i>Population Definition:</i></b>	Restricted Consumption-Subpopulation(s): Advises subpopulations potentially at greater risk, e.g., pregnant or nursing women, and/or small children, to restrict the size of the organism and/or frequency of meals consumed.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614
<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 703
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	salmon-coho	
<b><i>Population:</i></b>	RGP	
<b><i>Population Definition:</i></b>	Restricted Consumption-General Population: Advises the general population to restrict the size of the organisms and/or the frequency of meals consumed.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614

## ***FISH ADVISORIES***

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***Project Name*** ***SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)***

***ProjectID:*** 05-14

<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 704
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	salmon-coho	
<b><i>Population:</i></b>	RSP	
<b><i>Population Definition:</i></b>	Restricted Consumption-Subpopulation(s): Advises subpopulations potentially at greater risk, e.g., pregnant or nursing women, and/or small children, to restrict the size of the organism and/or frequency of meals consumed.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614
<hr/>		
<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 705
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	trout-brown	
<b><i>Population:</i></b>	RGP	
<b><i>Population Definition:</i></b>	Restricted Consumption-General Population: Advises the general population to restrict the size of the organisms and/or the frequency of meals consumed.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614
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<b><i>Advisory:</i></b>	Sheboygan River	<b><i>AdvisoryID:</i></b> 706
<b><i>Extent:</i></b>	From the dam at Sheboygan Falls to the mouth	
<b><i>Pollutant:</i></b>	PCBs (total)	
<b><i>Species:</i></b>	trout-brown	
<b><i>Population:</i></b>	RSP	
<b><i>Population Definition:</i></b>	Restricted Consumption-Subpopulation(s): Advises subpopulations potentially at greater risk, e.g., pregnant or nursing women, and/or small children, to restrict the size of the organism and/or frequency of meals consumed.	
<b><i>Advisory Type:</i></b>	River	<b><i>Advisory Number:</i></b> 890
<b><i>Status (Active or Rescinded):</i></b>	Active	<b><i>Date Rescinded:</i></b>
<b><i>Contact Name:</i></b>	Candy Schrank	<b><i>Contact Number:</i></b> 608-267-7614

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## ***FISH ADVISORIES***

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***Project Name*** ***SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)***

***ProjectID:*** 05-14

***Advisory:*** Sheboygan River ***AdvisoryID:*** 709  
***Extent:*** From the dam at Sheboygan Falls to the mouth  
***Pollutant:*** PCBs (total)  
***Species:*** trout-lake  
***Population:*** NCGP  
***Population Definition:*** No Consumption-General Population: Advise against consumption by the general population.

***Advisory Type:*** River ***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active ***Date Rescinded:***

***Contact Name:*** Candy Schrank ***Contact Number:*** 608-267-7614

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***Advisory:*** Sheboygan River ***AdvisoryID:*** 710  
***Extent:*** From the dam at Sheboygan Falls to the mouth  
***Pollutant:*** PCBs (total)  
***Species:*** trout-lake  
***Population:*** NCSP  
***Population Definition:*** No Consumption-Subpopulation(s): Advises against consumption for populations that are potentially at greater risk, e.g., pregnant or nursing women, and small children.

***Advisory Type:*** River ***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active ***Date Rescinded:***

***Contact Name:*** Candy Schrank ***Contact Number:*** 608-267-7614

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***Advisory:*** Sheboygan River ***AdvisoryID:*** 707  
***Extent:*** From the dam at Sheboygan Falls to the mouth  
***Pollutant:*** PCBs (total)  
***Species:*** trout-lake  
***Population:*** RGP  
***Population Definition:*** Restricted Consumption-General Population: Advises the general population to restrict the size of the organisms and/or the frequency of meals consumed.

***Advisory Type:*** River ***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active ***Date Rescinded:***

***Contact Name:*** Candy Schrank ***Contact Number:*** 608-267-7614

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## **FISH ADVISORIES**

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**Project Name** **SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)****ProjectID:** 05-14

<b>Advisory:</b>	Sheboygan River	<b>AdvisoryID:</b> 708
<b>Extent:</b>	From the dam at Sheboygan Falls to the mouth	
<b>Pollutant:</b>	PCBs (total)	
<b>Species:</b>	trout-lake	
<b>Population:</b>	RSP	
<b>Population Definition:</b>	Restricted Consumption-Subpopulation(s): Advises subpopulations potentially at greater risk, e.g., pregnant or nursing women, and/or small children, to restrict the size of the organism and/or frequency of meals consumed.	
<b>Advisory Type:</b>	River	<b>Advisory Number:</b> 890
<b>Status (Active or Rescinded):</b>	Active	<b>Date Rescinded:</b>
<b>Contact Name:</b>	Candy Schrank	<b>Contact Number:</b> 608-267-7614
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<b>Advisory:</b>	Sheboygan River	<b>AdvisoryID:</b> 711
<b>Extent:</b>	From the dam at Sheboygan Falls to the mouth	
<b>Pollutant:</b>	PCBs (total)	
<b>Species:</b>	trout-rainbow	
<b>Population:</b>	RGP	
<b>Population Definition:</b>	Restricted Consumption-General Population: Advises the general population to restrict the size of the organisms and/or the frequency of meals consumed.	
<b>Advisory Type:</b>	River	<b>Advisory Number:</b> 890
<b>Status (Active or Rescinded):</b>	Active	<b>Date Rescinded:</b>
<b>Contact Name:</b>	Candy Schrank	<b>Contact Number:</b> 608-267-7614
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<b>Advisory:</b>	Sheboygan River	<b>AdvisoryID:</b> 712
<b>Extent:</b>	From the dam at Sheboygan Falls to the mouth	
<b>Pollutant:</b>	PCBs (total)	
<b>Species:</b>	trout-rainbow	
<b>Population:</b>	RSP	
<b>Population Definition:</b>	Restricted Consumption-Subpopulation(s): Advises subpopulations potentially at greater risk, e.g., pregnant or nursing women, and/or small children, to restrict the size of the organism and/or frequency of meals consumed.	
<b>Advisory Type:</b>	River	<b>Advisory Number:</b> 890
<b>Status (Active or Rescinded):</b>	Active	<b>Date Rescinded:</b>
<b>Contact Name:</b>	Candy Schrank	<b>Contact Number:</b> 608-267-7614

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## ***FISH ADVISORIES***

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***Project Name*** ***SHEBOYGAN RIVER/HARBOR - PROJECT 1 (Pilot Study)***

***ProjectID:*** 05-14

***Advisory:*** Sheboygan River

***AdvisoryID:*** 713

***Extent:*** From the dam at Sheboygan Falls to the mouth

***Pollutant:*** PCBs (total)

***Species:*** walleye

***Population:*** NCGP

***Population Definition:*** No Consumption-General Population: Advise against consumption by the general population.

***Advisory Type:*** River

***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active

***Date Rescinded:***

***Contact Name:*** Candy Schrank

***Contact Number:*** 608-267-7614

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***Advisory:*** Sheboygan River

***AdvisoryID:*** 714

***Extent:*** From the dam at Sheboygan Falls to the mouth

***Pollutant:*** PCBs (total)

***Species:*** walleye

***Population:*** NCSP

***Population Definition:*** No Consumption-Subpopulation(s): Advises against consumption for populations that are potentially at greater risk, e.g., pregnant or nursing women, and small children.

***Advisory Type:*** River

***Advisory Number:*** 890

***Status (Active or Rescinded):*** Active

***Date Rescinded:***

***Contact Name:*** Candy Schrank

***Contact Number:*** 608-267-7614

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