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**Name of Organization:** Wisconsin Department of Natural Resources

**Type of Organization:** State

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**Project Title:** Estabrook Impoundment PCB Remediation

**Project Category:** Contaminated Sediments

**Rank by Organization (if applicable):** 3

**Total Funding Requested (\$):** 200,000 **Project Duration:** 1.5 Years

**Abstract:**

The Milwaukee Estuary Remedial Action Plan (RAP) identified contaminated sediment found throughout the basin as a major contributor to beneficial use impairments in the area of concern (AOC). Progress has been made at cleaning up the furthest upstream sources of contaminated sediment entering the Milwaukee River from Cedar Creek. The next significant deposit and contaminant contributor to the AOC is found in the Estabrook Impoundment and Lincoln Park lagoon, containing an estimated 5,000 kg of PCBs. Some other depositional zones within the study area are also suspected of containing significant amounts of PCBs.

We propose to fully identify the volume, and horizontal and vertical extent, of the sediment deposits as a precursor to preparing a remediation design. This is the first phase of a two phase project to remove this important contaminant source from the Milwaukee River and Lake Michigan ecosystems.

**Geographic Areas Affected by the Project**

**States:**

- |                                    |                                     |              |
|------------------------------------|-------------------------------------|--------------|
| <input type="checkbox"/> Illinois  | <input type="checkbox"/>            | New York     |
| <input type="checkbox"/> Indiana   | <input type="checkbox"/>            | Pennsylvania |
| <input type="checkbox"/> Michigan  | <input checked="" type="checkbox"/> | Wisconsin    |
| <input type="checkbox"/> Minnesota | <input type="checkbox"/>            | Ohio         |

**Lakes:**

- |  |                          |           |
|--|--------------------------|-----------|
| <input type="checkbox"/> Superior            | <input type="checkbox"/> | Erie      |
| <input type="checkbox"/> Huron               | <input type="checkbox"/> | Ontario   |
| <input checked="" type="checkbox"/> Michigan | <input type="checkbox"/> | All Lakes |

**Geographic Initiatives:**

- |  |                                  |                                     |                                      |   |
|--|----------------------------------|-------------------------------------|--------------------------------------|---|
| <input type="checkbox"/> Greater Chicago | <input type="checkbox"/> NE Ohio | <input type="checkbox"/> NW Indiana | <input type="checkbox"/> SE Michigan | <input type="checkbox"/> Lake St. Clair |
|--|----------------------------------|-------------------------------------|--------------------------------------|---|

**Primary Affected Area of Concern:** Milwaukee Estuary, WI

**Other Affected Areas of Concern:**

***For Habitat Projects Only:***

**Primary Affected Biodiversity Investment Area:**

**Other Affected Biodiversity Investment Areas:**

**Problem Statement:**

The Estabrook Impoundment contains a major contaminated sediment "hot spot", acting as a source of PCBs to the Milwaukee Estuary and Lake Michigan. Over 5,000 kg of PCB are contained within this rather small geographic area. The Milwaukee Estuary Remedial Action Plan Technical and Citizens Advisory Committees identified contaminated sediment as the major area of emphasis for the Remedial Action Plan. The RAP Sediment Work Group outlined a contaminated sediment management strategy to address this complicated issue.

A major component of the sediment strategy is to identify and remediate upstream sources of contaminated sediments to the Milwaukee Estuary. The Cedar Creek Mass Balance Study (WDNR, 1993) identified this waterway as a contributor of PCB contaminated sediments to the Milwaukee River mainstem. In 1994, over 7,500 cubic yards of sediment (containing about 700 kg of PCB) was removed from Ruck Pond. Ruck Pond represents the upstream extent of PCB contamination within the Cedar Creek / Milwaukee River system. Further work is underway to clean up the impoundments downstream to prevent PCBs from entering the Milwaukee River.

Besides this source, the Milwaukee River PCB Mass Balance Project (Baird and Associates, 1997) identified Lincoln Creek as a major historical source of PCB contaminated sediments to the Milwaukee River near Estabrook Park. A lagoon at the mouth of Lincoln Creek, and a dam on the Milwaukee River at Estabrook Park create conditions resembling sediment settling basins, allowing sediments to accumulate and concentrate contaminants. The gates on the dam near the deposit are opened and closed on a seasonal schedule, which allow some of the contaminated sediments to move further downstream to the Milwaukee Estuary.

Remediation of the Estabrook Impoundment PCB "hot spot" will remove over 5,000 kg of PCB from the aquatic environment and remove this source of contaminants to the Milwaukee Estuary and Lake Michigan. As a comparison, this mass of PCB is greater than estimated for all sediment deposits in the Lower Fox River upstream of the De Pere dam. By contrast, the known PCB deposits in the upper river portion of the Sheboygan River and Harbor Superfund Site contain approximately 17,000 cubic yards of contaminated sediment containing an estimated 129 kg of PCBs.

A major environmental benefit of this project is a projected 70 percent reduction in PCB transport from the Milwaukee River to the Milwaukee Estuary within 3-5 years of project completion. This reduction, in turn, is expected to reduce fish tissue PCB concentrations within and downstream of the Estabrook Impoundment.

Contaminated sediments are either wholly or partially responsible for most of the 11 beneficial use impairments identified in the Milwaukee Estuary RAP. Contaminated sediment remediation will move us toward meeting RAP and Lake Michigan LaMP goals more rapidly than any other identified activity. This proposal follows the Milwaukee Estuary RAP Sediment

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Strategy, and will provide us with the ability to further involve the public in sediment management decision making.

**Proposed Work Outcome:**

The outcome of this project is information needed to conduct removal design of contaminated sediment within the Estabrook Impoundment. We have limited data on the overall spatial extent of the contaminated sediment deposits. This project will yield data needed to determine the volume of contaminated sediment, and the horizontal and vertical extent of contamination, in preparation for preparing a remediation design and specifications.

We will also present this information and other contaminated sediment information from the Milwaukee AOC through a contaminated sediment database accessible to the public through the internet.

The second phase, (not included in this proposal) will be to hire an outside engineering construction firm to assist in preparing dredging specifications, locating disposal sites, hiring a remediation contractor, and overseeing the contractor.

<b>Project Milestones:</b>	<b>Dates:</b>
Project Start	10/2000
Obtain digital elevation models for area	01/2001
Complete Project QAPP	04/2001
Complete hydrographic survey	06/2001
Quantify PCB load from Lincoln Creek	08/2001
Quantify PCB sediment contamination	09/2001
Complete analysis/interpretation	03/2002
Make data accessible through internet	04/2002

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Project Addresses Environmental Justice

**If So, Description of How:**

Project Addresses Education/Outreach

**If So, Description of How:**

This project will help educate the public through an internet site that will provide data accessibility and keep the public informed and involved about contaminated sediment issues throughout the Milwaukee River Basin with special emphasis on the Milwaukee Estuary Area of Concern.

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**Project Budget:**

	<b>Federal Share Requested (\$)</b>	<b>Applicant's Share (\$)</b>
<b>Personnel:</b>	0	26,000
<b>Fringe:</b>	0	8,600
<b>Travel:</b>	0	0
<b>Equipment:</b>	0	0
<b>Supplies:</b>	3,000	0
<b>Contracts:</b>	197,000	0
<b>Construction:</b>	0	0
<b>Other:</b>	0	0
<b>Total Direct Costs:</b>	200,000	34,600
<b>Indirect Costs:</b>	0	0
<b>Total:</b>	200,000	34,600
<b>Projected Income:</b>	0	0

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**Funding by Other Organizations (Names, Amounts, Description of Commitments):**

The Milwaukee Metropolitan Sewerage District (MMSD) will provide two staff persons to collect sediment samples for this project. Estimated in-kind contribution will be approximately \$12,000.00.

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**Description of Collaboration/Community Based Support:**

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Project Partners include:

Milwaukee Metropolitan Sewerage District  
The Southeastern Wisconsin Regional Planning Commission (SEWRPC)  
Milwaukee County  
Milwaukee Estuary Remedial Action Plan Citizens Advisory Committee  
Milwaukee River Basin Land and Water Partners  
U.S. Army Corps of Engineers (future)

We are actively involved in many different projects with these potential partners and expect a strong level of participation and commitment from each.