
Name of Organization: Michigan DEQ, Surface Water Quality Division

Type of Organization: State

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MDEQ-Surface Water Quality Division

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Project Title: Deer Lake Remediation

Project Category: Contaminated Sediments

Rank by Organization (if applicable): 0

Total Funding Requested (\$): 500,000 **Project Duration:** 2 Years

Abstract:

Deer Lake is centrally located near the city of Marquette, in Michigan's Upper Peninsula. It is a designated Area of Concern due to mercury in the sediments affecting fish and piscivorous wildlife. The mercury in the sediments and fish are some of the highest in the Great Lakes Region. Direct sources of the mercury to the sediments ceased in 1983. MDEQ-SWQD, with the assistance of the USEPA-GLNPO R/V Mudpuppy, delineated approximately 400,000 cubic yards of mercury contaminated sediments in Deer Lake in a 1998 survey. MDEQ-SWQD has applied for Clean Michigan Initiative funding to conduct a sediment remediation of Deer Lake in 2001. MDEQ-SWQD is seeking an additional \$500,000 from the USEPA-GLNPO to supplement state resources to implement the remediation.

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 checked="" type="checkbox"/> Michigan | <input type="checkbox"/> Wisconsin |
| <input type="checkbox"/> Minnesota | <input type="checkbox"/> Ohio |

Lakes:

- | | |
|--|------------------------------------|
| <input checked="" type="checkbox"/> Superior | <input type="checkbox"/> Erie |
| <input type="checkbox"/> Huron | <input type="checkbox"/> Ontario |
| <input 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: Deer Lake, MI

Other Affected Areas of Concern: All Mercury affected AOC's

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area:

Other Affected Biodiversity Investment Areas:

Problem Statement:

Deer Lake sediment has mercury concentrations higher than any other inland lake in Michigan (up to 16 ppm d.w.). Deer Lake fish have consistently recorded some of the highest levels of mercury in fish tissue in the Great Lakes region (pike = 9.1 ppm). Deer Lake has been under a No-Consumption Fish Advisory since mercury was discovered in the sediments and fish (1981). Mercury loading from direct sources ceased in 1983. Mercury contaminant levels in Deer Lake fish continue to be significant higher than in nearby lakes and waterbodies exposed solely to atmospheric and geological sources.

Proposed Work Outcome:

MDEQ-Surface Water Quality Division is seeking assistance from GLNPO to help conduct a remediation to remove a significant mass of mercury contaminated sediments from Deer Lake. MDEQ-SWQD anticipates that mercury concentrations in fish will decrease substantially after the remediation. This is based on fish concentrations below Deer Lake, in the Carp River Impoundment, where the sediments are below 1ppm (d.w.). By working in cooperation with the Deer Lake Public Advisory Council and various stakeholders, MDEQ-SWQD believes the removal of the mercury contaminated sediments from Deer Lake will lead to delisting of Deer Lake as an International Joint Commission designated Area Of Concern.

Project Milestones:	Dates:
Project Start	09/2000
Delineation of Mercury-Report	12/2000
Remedial Plans and Specification drafted	01/2001
Remediation Implementation begun	05/2001
Remediation complete	11/2001
Remediation Plan Report- Draft	03/2002
Remediation Plan Report - Final	06/2002
Project End	09/2002

Project Addresses Environmental Justice

If So, Description of How:

Project Addresses Education/Outreach

If So, Description of How:

Project Budget:

	Federal Share Requested (\$)	Applicant's Share (\$)
Personnel:	1,000	0
Fringe:	1,000	0
Travel:	1,000	0
Equipment:	1,000	0
Supplies:	1,000	0
Contracts:	492,000	3,980,000
Construction:	1,000	0
Other:	1,000	0
Total Direct Costs:	499,000	3,980,000
Indirect Costs:	1,000	0
Total:	500,000	3,980,000
Projected Income:	0	0

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

SWQD has requested a legislative appropriation of 3.98 Million dollars from the Clean Michigan Initiative for implementation of remedial actions on Deer Lake sediments. A final sediment remediation scenario has not been chosen, though options have been explored. Costs for sediment remedial options range from \$1,000,000 to \$19,000,000, depending on the specific remedial option and stakeholders participation.

Description of Collaboration/Community Based Support:

MDEQ-SWQD will seek to incorporate the support of the Deer Lake Public Advisory Council (PAC) and other stakeholders in remediating Deer Lake by removing mercury contaminated sediment. MDEQ will work with the PAC on issues such as impoundment drawdown, resuspension of sediments, and expected outcomes.

In cooperation with the USEPA-Region 5 FIELDS Group, and USEPA-GLNPO, MDEQ-SWQD is in the planning stages of finalizing a survey of Deer Lake sediments to delineate mercury contamination for purposes of developing detailed dredging plans.

After remediation of the sediments, MDEQ will continue to monitor the levels of mercury in the fish to demonstrate the effectiveness of mercury sediment remediation on lowering fish tissue concentrations.