# Environment and Natural Resources Trust Fund
# 2009 Phase 2 Request for Proposals (RFP)

**LCCMR ID: 041-B1**

**Project Title:** Nitrogen Contributions To the Mississippi River Basin

**Total Project Budget: $** $897,000

**Proposed Project Time Period for the Funding Requested:** July1, 2009 to June 30, 2012

**Other Non-State Funds: $** $0.00

**Priority:** B1. Reduce Soil Erosion


**First Name:** Marvin **Last Name:** Hora

**Sponsoring Organization:** MPCA

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| Region: | County Name: | City / Township: |
|---|---|---|
| Statewide | | Mississippi River Basin |


**Summary:** To review/determine the Minnesota sources and contributions of nitrogen to the Mississippi River Basin. To detail/analyze the impacts to Gulf Hypoxia and drinking water supplies in the Karst Region.


**Main Proposal:** 1008-2-025-proposal-Final 2009_main_proposal_template.doc

**Project Budget:** 1008-2-025-budget-Copy of RFP_2009_Project Budget.xls

**Qualifications:** 1008-2-025-qualifications-MARVIN and Wayne Biography1.doc

**Map:** 1008-2-025-maps-LCMR_Map2.png

**Letter of Resolution:**

# MAIN PROPOSAL

**PROJECT TITLE:** Nitrogen Contributions to the Mississippi River Basin

## I. PROJECT STATEMENT

While virtually all other conventional pollutants are decreasing in Minnesota waters, the levels of nitrogen are increasing. Elevated concentrations of nitrate in drinking water pose a threat to human health, particularly children of southeast Minnesota. The Minnesota Pollution Control Agency will be assessing state surface waters classified for drinking water for inclusion on the 2010 Impaired Waters list. Nitrogen, along with phosphorus, has been identified as a primary contributor to the large area of the Gulf of Mexico that is depleted of oxygen and aquatic life. The focus on the point, nonpoint and natural sources of nitrogen in the Minnesota portion of the Mississippi River Basin (Minnesota, St. Croix, Upper and Lower Mississippi basins) is due to the Basin's direct contribution to the Gulf Hypoxia area, the fragile Southeast Minnesota drinking water concern, and nitrogen's overall contribution to the degradation of Minnesota waters. This project will mirror and complement the successful 2004 LCCMR project to assess phosphorus sources and loads to Minnesota waters, and will build upon the joint Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Agriculture (MDA) 1991 study of Nitrogen in Minnesota Ground Water.

## II. DESCRIPTION OF PROJECT RESULTS

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**Result 1:** Identification of the Amount of Nitrogen Contributed to Surface Water by Point Sources — **Budget: $ 231,000**

This result will identify and quantify the point sources to surface waters. Point sources are regulated municipal and industrial wastewater and storm water, feedlots and private disposal systems.

| Deliverable | Completion Date |
|---|---|
| **1**. Identification and categorization of point sources | January 1, 2010 |
| **2.** Quantification of source contributions | June 30, 2011 |

**Result 2:** Identification of the Amount of Nitrogen Contributed to Surface Water by Nonpoint Sources of Nitrogen — **Budget:** $ **400,000**

This result will identify and quantify nonpoint and background sources such as tile drainage, surface runoff, nitrogen fixation, atmospheric sources, fertilizer usage and others as appropriate.

| Deliverable | Completion Date |
|---|---|
| **1**. Identification and categorization of nonpoint and background sources | January 1, 2010 |
| **2.** Quantification of source contributions | December 31, 2011 |

**Result 3:** Determination of the impact and relative importance of source contributions. — **Budget: $135,000**

To develop control strategies and effectively manage the issue, a key need is knowing where to focus efforts and resources. This result will be a detailed analysis of the sources that if controlled provide the best results.

| Deliverable | Completion Date |
|---|---|
| **1.** Analysis of source impact and importance | January 1, 2012 |

**Result 4**: Analysis and Recommendations for Control and Feasible Reduction Amounts from Sources **Budget: $131,000**

This result will provide the actions that can be implemented to reduce nitrogen discharges from point and nonpoint sources.

| Deliverable | Completion Date |
|---|---|
| **1.** Completion of Final Report | June 30, 2012 |

## III. PROJECT STRATEGY AND TIMELINE

### A. Project Partners

The MPCA will be the lead for the project due to its federally delegated Clean Water Act authorities and responsibilities; it will oversee development of the point source and urban non-point contributions, and co-develop the background or natural sources component. The MDA will oversee development of agricultural nonpoint source contributions, develop the background or natural sources component, and collect detailed fertilizer and manure use information. Dr. D. J Mulla of the University of Minnesota, a nationally recognized expert in this area, will provide technical expertise for development of the agricultural and background contributions.

### B. Project Impact

The Mississippi River Basin drains over 60% of the land surface area of Minnesota and contains over 60% of the wastewater dischargers in the state. Its drainage includes the largest cities and most densely populated counties. Agriculture, primarily in the tributary Minnesota River basin, is a major land use in the Mississippi Basin. The National Hypoxia Task Force has established an action plan of developing comprehensive state nutrient management strategies for phosphorus and nitrogen. Simply put, the task force plan seeks to address a basin wide reduction of 45% for both phosphorus and nitrogen over the next 7 years through addressing basin nutrient reduction goals and strategies. It would greatly benefit Minnesota to know specific information on its contributions of nitrogen and phosphorus so the most cost effective and efficient controls can be established. In addition, the southeast Minnesota karst region lies within the Mississippi Basin, where drinking water supplies continue to be impacted by contributions of nitrogen from various sources to the surface and ground water.

### C. Time

The estimated cost of this project is $897,000. The phosphorus study was completed in 2004 for a total cost of $400,700 of which $244,000 was funded by the Environmental Trust Fund. The nitrogen study is a much more diverse and complex undertaking. Because field data acquisition is included in the project, a three year time window is required to complete it.

### D. Long-Term Strategy (if applicable)

This project will provide basic information to begin the long term effort to reduce eutrophication in Minnesota waters, protect drinking water sources, and reduce Minnesota's contribution to hypoxia in the Gulf of Mexico.

# Project Budget

*INSTRUCTIONS AND TEMPLATE (1 PAGE LIMIT)*

*(One page limit, single-sided, 10 pt. font minimum Retain the bold text and remove all instructions typed in italics. Add or delete rows as is necessary. If a category is not applicable you may write "N/A" , leave it blank, or delete the row.)*

## IV. TOTAL PROJECT REQUEST BUDGET

| **BUDGET ITEM** *(See list of Eligible & Non-Eligible Costs, p. 17)* | **AMOUNT** | **% FTE** |
|---|---|---|
| **Personnel:** | | % |
| Pollution Control Agency | $144,000 | 50% |
| Department of Agriculture | $142,000 | 80% |
| **Contracts:** *With whom and for what? List out by item.* | $ - | |
| Point Source Technical Services | $180,000 | |
| MDA Nonpoint Source Technical Contracts | $60,000 | |
| University of Minnesota- Dr. David Mulla | $315,000 | |
| | | |
| **Equipment/Tools:** | $3,000 | |
| **Acquisition (Including Easements):** | NA | |
| **Restoration:** | $ - | |
| **Other:** . | $ - | |
| Printing/travel/communications/ supplies | $53,000 | |
| **TOTAL PROJECT BUDGET REQUEST TO LCCMR** | $ 897,000 | |

## V. OTHER FUNDS

| **SOURCE OF FUNDS** | **AMOUNT** | **Status** |
|---|---|---|
| **Remaining $ From Previous Trust Fund Appropriation (if applicable):** *How much Trust Fund money remains not spent or legally obligated from any previous Trust Fund appropriation for any directly related project of the proposing project, project manager, or project organization? Specify the appropriation.* | $ - | |
| **Other Non-State $ Being Leveraged During Project Period:** *What additional non-state cash $ will be spent on the project during the funding period? For each individual sum, list out the source of the funds, the amount, and indicate whether the funds are secured or pending approval.* | $100,000 | Unsecured Potential USEPA funding |
| **Other State $ Being Spent During Project Period:** *What additional state cash $ (e.g. bonding, other grants) will be spent on the project during the funding period? For each individual sum, list out the source of the funds, the amount, and indicate whether the funds are secured or pending approval.* | $ - | |
| **In-kind Services During Project Period:** *What in-kind services will be provided during the funding period? List type of service(s) and estimated value. In-kind services listed should be specific to the project.* | $ - | |
| **Past Spending:** *List money spent or to be spent on this specific project, cash and/or in-kind, for 2-year timeframe prior to July 1, 2009* | $ - | |

## PROJECT MANAGERS QUALIFICATIONS

**Marvin Hora**

Present Position
Marvin Hora is the Program Manager for the Water Assessment and Environmental Information Section of Environmental Analysis and Outcomes Division in the Minnesota Pollution Control Agency. Mr. Hora has been with the Minnesota Pollution Control for 35 years and held various positions in the air and water pollution control areas. Presently Mr. Hora manages a Section which develops statewide ambient chemical and biological quality standards for waters of the state, limits for all municipal, private and industrial wastewater discharge permits, mercury research and leads the environmental investigation of perfluorochemicals (PFCs) in Minnesota.

EDUCATION
Bachelor of Science Degree in Wildlife Biology from South Dakota State University in Brookings, South Dakota. 1971
Masters Degree in Aquatic Ecology with a chemistry Minor from South Dakota State University in Brookings, South Dakota. 1973

MOST RECENT LCCMR PROJECT
Marvin Hora was the project manager of the successful project, Detailed Assessment of Phosphorus Sources to Minnesota Watersheds 2004. The project was initiated on July 1, 2003 and completed nine months later in February 2004.

**Wayne Anderson P.E.**

Mr Anderson's position exists to plan and direct consistent and comprehensive coordination and communications between the MPCA and the various agricultural constituents/agencies in the state. Mr. Anderson has been with the Agency for 35 years and has held various positions throughout the Agency. He has represented the state of Minnesota on the coordinating committee for the Gulf of Mexico Hypoxia Task Force since its inception. Mr Anderson has managed several successful LCMR water quality projects including the Minnesota River Assessment Project, BMP Handbook Development and development of the Agricultural Nonpoint Source(AGNPS) Model.

Education:
Bachelor of Agricultural Engineering Degree from the University of Minnesota in 1973.
Registered Professional Engineer in Minnesota.

# Project Impact Area