

## **Finding Common Ground: A Community-Based Watershed Project to Restore Water Quality, Protect Water and Land Resources, Improve Agriculture Economy and Long-Term Sustainability in the Rock River Headwaters, Wisconsin**

The headwaters of the Rock River Basin are all designated as “Impaired Waters” due to impacts from sediment, phosphorus and habitat alterations . WDNR has initiated monitoring studies to obtain water quality and pollutant loading data needed to estimate pollutant load reduction necessary to correct the impairments on three streams tributary to the East Branch Rock River. This project proposal requests funding to: 1) make the best use of monitoring/modeling data by conducting a collaborative public participation process, Appreciative Inquiry, to develop and implement a watershed restoration plan; 2) implement President Bush’s 8/26/04 Executive Order Facilitation of Cooperative Conservation. Restoring water quality in the Rock River Headwaters benefits all stakeholders: agricultural, urban and recreational. We must “Find Common Ground” for all stakeholders and work together to implement an effective restoration plan to restore water quality and conserve our land and water resources in the Rock River Basin.

### **Project Objectives:**

- 1) Using Appreciative Inquiry ([www.wiki-thataway.org/index.php?page=AppreciativeInquiry](http://www.wiki-thataway.org/index.php?page=AppreciativeInquiry)), a new innovative citizen involvement process, demonstrate that ecosystem services can be restored and maintained in agricultural dominated watersheds through a collaborative, self-directed, watershed approach. Create a collective vision of how watershed residents would like their “home” to look in the future. Develop a planned approach to produce that vision on the landscape. .
- 2) Develop and implement technical strategies to target best management practices to improve water quality of surface and groundwater, decrease flooding, increase

groundwater recharge and restore biological diversity in the watershed with the most benefit and the least cost.

- 3) Utilize market-based incentives to encourage/promote installation of water quality practices throughout the project area.
- 4) Document the water quality/flood water retention/habitat/diversity benefits achieved by installation of upland best management practices and wetland restorations.
- 5) Reduce nitrate pollution to the Mississippi River and Gulf of Mexico.
- 6) Restore water quality in the Rock River Headwaters so that these waters can be removed from the EPA 303 (d) impaired waters list.
- 7) Create a process that will attract support and long-term funding to implement the plan developed by this project, and that can be exported to other watersheds.

**These project objectives are consistent with the four CPI objectives:** maximize efforts to develop partnerships with diverse stakeholder groups for both the rural and urban landscapes of the basin; network partners to promote sharing of information and technical and financial resources; export lessons learned to similar agricultural basins; use innovative methods to accomplish watershed restoration.

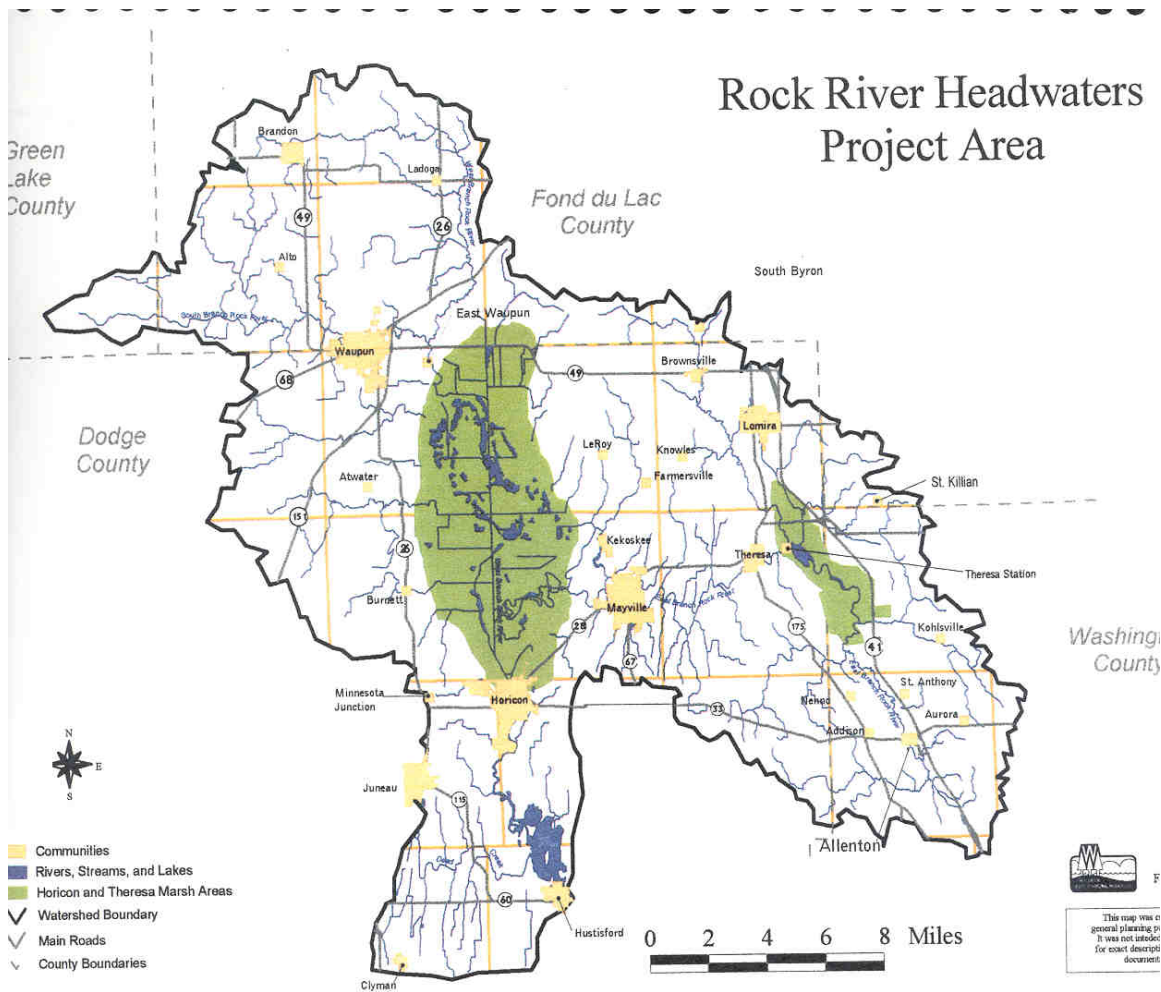
**This project will address several CPI priorities:** Restoration of freshwater aquatic habitat; protection and enhancement of habitat for species with declining populations; creation of wildlife habitat corridors; reduce eutrophication of coastal water bodies; comprehensive nutrient management planning; animal waste utilization; integration of environmental stewardship with producer production objectives.

**Project Background:** Since European settlement of the Rock River basin in the mid-1880's, plowing of the prairie soil and drainage of wetlands for agriculture and urban development has altered waterways and wetlands impairing the natural function of these headwaters systems and significantly reduced the infiltration capacity of the soil. These alterations of the natural hydrologic systems have resulted in increased volume of runoff causing channel scouring, increased flooding, increased sedimentation, increased nutrients, loss of wetlands, riparian buffer/corridor, decreased groundwater recharge and declining water quality to support desired aquatic life. The loss of terrestrial habitat associated with the natural water systems has also significantly changed and depleted the natural biodiversity associated with the streams and wetlands. As a result of these perturbations, the entire Rock River from its headwaters to the Illinois State Line is listed as an impaired water on the USEPA 303 (d) list. The Rock River Basin is a part of the agricultural landscape of the Upper Mississippi drainage area that has been targeted as the highest priority for reducing the nitrogen loading to remediate the hypoxic "Dead Zone" in the Gulf of Mexico.

Healthy headwater systems are critical to the healthy functioning of downstream streams, rivers and lakes, and for recharge and protection of groundwater. The challenge resource managers face is how to restore these critical ecosystem services in a working agricultural watershed with a rapidly growing rural non-farm population, and growing urban population. Working in close cooperation with the stakeholders, watershed managers must develop and promote land management practices that are compatible with or improve economic farming operations so that the practices will be accepted and applied by agricultural producers. Though urban areas comprise only a small percentage

of the Rock River headwaters landscape, attention must also be focused on stormwater planning and management in the cities and villages as well as the expanding urbanizing landscape surrounding the municipal boundaries. While this grant request focuses primarily on the rural watershed, it is recognized that urban point and non-point pollutant sources must also be addressed, but through different funding sources.

### Project Area Description



The Upper Rock River watershed (Horicon Marsh/Lake Sinissippi watershed) comprises an area of approximately 627 square miles. Two major tributaries, the West/South Branch Rock River starts near Brandon in Fond du Lac County and the East Branch Rock River east of Allenton in Washington County, join together in the Horicon Marsh

and then flow southward through Lake Sinissippi. The Upper Rock River watershed is the headwaters of the Rock River which is a major tributary to the Mississippi River at Rock Island, Illinois.

Before European settlement the Upper Rock River landscape was primarily comprised of oak savanna, prairie and wetlands. Today, land use is dominated by agriculture, though the watershed is increasingly urbanizing around the cities of Waupun, Mayville, Horicon and the many smaller municipalities in the watershed.

The glacial origin of the Upper Rock watershed created extensive areas of wetlands, many which have been ditched and drained for agriculture and development. Significant water resource concerns in this watershed include severe pollution of lakes and rivers from rural/urban soil erosion and stormwater runoff, declining groundwater quality, increased flooding and fragmentation and loss of wildlife habitat. The entire Rock River from headwaters to the Illinois State Line are classified as “impaired waters” due to sediment and nutrient pollution and loss of habitat. The Horicon Marsh, designated a Wetland of International Significance by RAMSAR, is being significantly degraded by the heavy loading of sediment and phosphorus received from its tributaries. The East Branch watershed has the lowest compliance with BMP recommendations and the highest soil erosion rate in Dodge County (Dodge County Annual Erosion Survey). The West Branch, which is lower gradient, contains a large acreage of drained wetlands. Two water quality monitoring projects has been conducted to evaluate pollutant loadings to the Horicon Marsh and Lake Sinissippi. The Rock River Pollutant Trading Project conducted by the Rock River Watershed Partnership collected water quality data from September 1998-August 1999. The project area was found to deliver the highest unit

area phosphorus loading in the Rock basin (1.04 pounds/acre/year). Dissolved P loading was estimated at 75,100 lbs./year; total P 303,600 lbs/year; total suspended solids 24,700 tons/year. Rock River Headwaters, Inc. conducted monitoring from November 1997 – December 2000. U.S.G.S. monitoring stations on the East Branch, West Branch, Horicon Dam and Hustisford Dam estimated total P loading at 488,000 lbs/year and sediment at 19,190 tons/year. Rural non-point sources were determined to deliver 95% of the sediment load and 33% of the P load. Urban runoff and municipal and industrial point sources contribute an estimated 61% of the P load, with an additional 6% attributed to the goose flock using the Horicon Marsh.

The Rock River is one of the major tributaries to the Upper Mississippi River. Drained and farmed wetland soils are significant contributors of nitrogen to the Rock River and the Gulf of Mexico hypoxia problem primarily through drain tiles in the fields.

### **Project Methods: Public Involvement and Outreach Strategy**

1. Project funding will hire a project coordinator and two project assistants to implement the project as described below. Consulting services for Appreciative Inquiry will be contracted. Funding requested will provide support services and travel costs for 18 months for project staff.
2. Appreciative Inquiry, an innovative new public participation process which has been successfully used in the Imagine Chicago project, will be adopted and modified for use in a watershed project. This non-traditional approach focusing on stakeholders goals, strengths and successes rather than problems and issues, will be utilized to learn stakeholders positive visions and desires for the future status of the place in

which they live, and to collaboratively develop that vision into a implementation plan.

It is proposed to integrate all age groups into the process by using youths such as school FFA students to assist/conduct stakeholder interviews. Use existing project area environmental education facilities to assist with landowner and citizen outreach.

Conduct a “Sense of Place” program throughout the watershed to learn the values and concerns local citizens and landowners have for the place they live, work and play.

This part of the project will be based on the four successful community Sense of Place Projects that have been conducted in Mayville, Horicon, Waupun and Hustisford in 2003-2004.

3. The focus of the planning phase of this project is to identify and recruit partner groups with particular emphasis on recruiting farm organizations, farm network groups, and farm related business to be part of the planning and implementation of this project. A similar effort will be made to recruit and involve stakeholders. municipalities, civic groups, etc. whose interest is the urban areas. The intent is to have those affected by the project, develop and guide the implementation of the project. It is proposed to form a watershed commission or watershed advisory committee comprised of watershed stakeholders to direct, advise, oversee and advocate for the project. A watershed restoration plan will be developed through a collaborative community based initiative involving the many diverse stakeholders in the planning, implementation, monitoring and evaluating results of the project. A facilitated process will be used to form the commission with input and direction from stakeholders.

4. An outreach assessment study will be meshed with the Appreciative Inquiry process discussed above to determine the most effective approach/message to accomplish installation of environmentally friendly land management practices. The study will include an assessment of barriers to installation of practices through survey of watershed stakeholders and review of successful projects in other watersheds.
5. A targeted outreach plan will be developed. Outreach will utilize farm organizations, producer networks, agri-business, hunting/fishing organizations, community civic organizations, word of mouth, and personal face to face kitchen table meetings as well as existing formal education programs. The outreach effort will involve local school FFA/agriculture programs, community organizations and civic groups as communication conduits. Standard media methods will also be employed to inform watershed residents about the project proposal and progress. A partnership with an organization such as Aldo Leopold Foundation will be developed to promote land use ethic education. Involve non-profit, farm organizations, farm service businesses and private consultants to promote practices and provide information, education and installation services to landowners.
6. Establish a demonstration subwatershed to showcase economically viable agriculture practices and projects that accomplish restoration of watershed ecosystem services. Conduct wetland restoration/best management practices tours and informational seminars on a regular basis. Conduct detailed analysis of land use practices in the demonstration area. Monitor water quality changes to demonstrate measurable improvement in water quality resulting from land use changes.

7. Use peer incentive/recognition programs such as River Friendly Farmers, Wild Farm Alliance or a Wisconsin Green Tier program to provide recognition of participating landowners who use conservation practices on their farm.
8. Promote conservation practices that are compatible with conventional agricultural methods that will also have economic benefits to support/strengthen farm operation while accomplishing environmental goals. Example, Partner with the Sand County Foundation pilot market-based incentive project to develop and promote market-based incentives for nitrate reduction practices. Create incentives to reduce nitrogen discharge which will also reduce phosphorus discharge, create habitat and reduce greenhouse gas impacts. Nutrient trading will be considered as a potential tool for funding on-land practices. Investigate potential for alternative production/marketing methods such as rotational grazing, organic crops to obtain higher market value and local marketing for higher price on product. Investigate/promote avenues to increase farm income such as opportunity to rent land with improved habitat for hunting and bird watching; establish name recognition for products produced on environmentally friendly farms; agri-tourism; non-traditional crops with environmental benefits.
9. Conduct water quality and habitat monitoring using existing Rock River Coalition's and Washington County's Citizen Volunteer Monitoring program to obtain watershed data used to help develop river hydrology models, assist with water quality monitoring, wetland monitoring. Place particular emphasis on involving both rural and urban stakeholders in data collection and project evaluation.

**Pollutant Reduction Strategy:** The following are integral parts of this project proposal funded by other project sources.

1. When NR151 was adopted a minimum set of urban and rural performance standards were agreed to. The base level of expectation will be compliance with this minimum level of NR151. This project will emphasize voluntary installation of BMPs. The County Land Conservation Departments and Natural Resource Conservation Service will be the lead agencies to work with landowners to implement rural NR 151 requirements. The WDNR will provide assistance as requested when enforcement actions are necessary. WDNR and UWEX will have the lead working with urban water quality concerns.
2. Wisconsin DNR has initiated TMDL studies on three tributaries to the East Branch Rock River, one of the two main tributaries to the Horicon Marsh. Wisconsin's strategy to address EPA 303 (d) listed impaired waters is built on ongoing implementation of current programs (NR151, NR243 and NR216) and places emphasis on incorporating TMDLs into our watershed-based basin process. The TMDL studies will estimate necessary reduction in nutrient and sediment loading to achieve water quality standards for the full fish and aquatic designation which most of the headwater streams carry.
3. Model pollutant load reduction by conservation tillage practices, wetland restorations, riparian buffers and additional engineering controls at point sources using a GIS-linked Soil and Water Assessment Tool (SWAT). The model will identify "source" areas to target BMPs for greatest benefit/cost investment.
4. Identify and evaluate wetland restoration opportunities to achieve the greatest water quality, flood reduction and wildlife habitat benefits using GIS decision support tools developed under an EPA Wetland Protection Development Grant for the Milwaukee

River watershed. This work will be funded under an existing EPA grant to WDNR.

Decision support tools for wetlands will also be used as part of an evaluation procedure to track progress in achieving desired functions.

5. Pollutant reduction will be accomplished by promoting whole farm planning using our existing tool box of best management practices following both DATCP and NRCS guidelines. A treatment train approach will be promoted to include upland practices to encourage infiltration, soil loss reduction, nutrient reduction followed downhill with CREP stream bank buffers and WRP wetland restoration to remove remaining sediment and phosphorus before entering downstream surface waterways. Particular emphasis will be placed on practices that improve economics of the farming operation as well as achieving environmental improvement. Innovation and research will be promoted to develop approaches that create economic incentives to install environmentally friendly practices.

**Project Partnership Roles:**

Wisconsin Department of Natural Resources: Initial project leader and manager; Conduct TMDL studies, wetland prioritization study; Glacial Habitat Restoration Project wetlands restoration; implementation of NR151; project outreach and overall project facilitation and coordination.

University of Wisconsin Extension: Conduct outreach studies; facilitate formation of watershed commission; conduct outreaches; provide expertise in education outreach.

Land Conservation Departments and NRCS: Dodge, Fond du Lac, Washington LCDs and NRCS will be responsible for technical design and installation of BMPs; outreach to agricultural producers and agri-business.

Town and Country Resource Conservation and Development Area: Assist with outreach to develop partnerships. Potential administrator for project funds.

Rock River Coalition: Project sponsor; assist with outreach to develop partnerships; Issue groups provide technical expertise and advice; seek additional funding through grants; coordination of citizen monitoring program.

Lake Sinissippi Improvement District: Project sponsor; conduct outreach; possible financial support for practices or incentives.

U.S. Fish and Wildlife Service, Horicon National Wildlife Refuge: Project sponsor; possible financial support; conduct outreach; educational programs.

Farm Bureau: Potential project sponsor or collaborator; assist with outreach.

Clean Water Coalition: Project sponsor; outreach funded through grant from Environmental Defense Center for Conservation Incentives involving hunting/fishing organizations to promote BMPs to landowners and communities.

Sand County Foundation Nitrate Reduction Project: Complementary project working with stakeholders in watershed to provide technical expertise, outreach and incentive funding for design and installation of nitrogen reduction BMPs.

Central States Water Environment Association/Wisconsin Section: Collaborator for urban, municipal and industrial interests.

**Project Milestones and Timeline**

Task	Responsible Entity	2005	2006	2007	2008	2009-2015
Outreach strategy assessment	UWEX	X				
Visioning/Sense of Place Project	DNR, UWEX	X	X			
Establish Watershed Commission	DNR,LCD,UWEX		X			
Landowner Recognition	WC		X	X	X	X

Program						
Establish Demonstration Watershed	WC,LCD, DNR		X	X	X	
Develop watershed restoration plan	WC, DNR,LCC		X	X	X	
TMDL flow/WQ monitoring	DNR,USGS	X				
SWAT Model	DNR	X				
Restorable Wetland mapping, prioritizing, evaluation	DNR	X	X	X	X	X
BMP installation	LCD, NRCS		X	X	X	X
Nitrogen Reduction Studies	Sand County Found.	X	X	X	X	
Citizen Monitoring	Rock River Coalition		X	X	X	X

**Project Management:** The intent of this project is to develop a self-directed organization to develop and conduct a watershed restoration project. The advisory committee, which should be comprised of technical staff and watershed stakeholders, will become the “governing body” to direct the development and actions of the watershed project. Financial management will be handled initially by WDNR until an acceptable organization is found to act as the financial manager. From this preliminary organizational structure the watershed project elements will evolve as described above.

Key project personnel: James Congdon, WDNR Upper Rock Water Basin Leader; Ruth Johnson, WDNR Watershed Planner; Suzanne Wade, UWEX Basin Educator; David Neuendorf, Dodge County UWEX; Robert Krueger, Chair, Dodge County LCC; Marc Bethke, Dodge County Land Conservationist; NRCS Dodge County Conservationist; Land Conservation Department, Fond du Lac and Washington Counties; NRCS, Fond du Lac and Washington Counties; Jerry Bradley, Farm Bureau; Warren

Topel, President, Rock River Coalition; Greg Farnham, Commissioner, Lake Sinissippi Improvement District; Diane Georgetta, Town and Country RC&D.

**Anticipated Results and Benefits:** It is anticipated that the self-directed stakeholder approach and the use of innovative new public participation methods, Appreciative Inquiry, will bring out imagination, innovation and motivation resulting in significantly greater acreage of cropland being farmed with environmentally sound practices resulting in improvement in water quality due to increased participation of stakeholders in BMP installation. The project will be based on the traditional BMP tool kit, but will seek innovative approaches to pollutant reduction through new techniques and incentives. The results of this project are expected to be measured long-term in reduced pollutant loads (phosphorus, sediment, nitrogen, bacteria); increased species diversity; reduced flooding, increased groundwater recharge and ground water quality. Other measures will include acres of wetland in watershed; number, size and projected effectiveness of BMPs installed; improved local agriculture economy; change in stakeholder attitude toward land management practices and land use ethic; number of landowners voluntarily involved in the program; number of stakeholders actively involved in the AI process.

The number of producers that will be affected or will need to be involved in the project is not known at the present time. This information will be determined by the modeling segment of the project.

Project beneficiaries will include agricultural producers in the watershed, urban residents, recreational users of the lands and waters, tourism business, Lake Sinissippi residents and users, WDNR Horicon Marsh Wildlife Area, Horicon Marsh National Wildlife Refuge. Successful use of the AI process may benefit other watershed groups.

Downstream water users and the Gulf of Mexico will be significant benefactors of project success.

### Budget Narrative

Project Coordinator-18 months Salary, benefits, overhead, travel, office	\$80,860
2 Project Assistants 24 months salary, overhead, travel, office	72,284
AI consulting contract and facilitation	15,000
Website development and maintenance	5,000
Graphic design services	3,500
Printing	10,000
Mailing	5,000
Miscellaneous project cost	5,000
<b>Total Project Request</b>	<b>\$194,644</b>

Work Plan Elements-Total Costs	CPI Request	Non-NRCS	In-Kind	Total
Outreach strategy assessment/media outreach		35,000	10,000	45,000
Visioning/Sense of Place project		10,000	10,000	20,000
Landowner Recognition Program		5,000	5,000	10,000
Establish Demonstration Watershed		15,000	5,000	20,000
TMDL flow/WQ monitoring		65,000		65,000
SWAT Model		97,180		97,180
Citizen Monitoring		5,000	5,000	10,000
Develop watershed restoration plan		20,000	10,000	30,000
Nitrogen Reduction Studies		?		?
Restorable Wetland Mapping		EPA grant- 215,000		
<b>Total Estimated Cost</b>	<b>\$194,644</b>	<b>\$467,180</b>	<b>\$45,000</b>	<b>\$706,824</b>