

Minnesota River Update:

February 9, 2006

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<http://www.pca.state.mn.us/water/basins/mnriver/>*

WASTEWATER TREATMENT FACILITIES MOVE AHEAD WITH MINNESOTA RIVER BASIN PHOSPHORUS PERMIT: The Lower Minnesota River Dissolved Oxygen Total Maximum Daily Load (TMDL) Report called for a reduction in the amount of phosphorus discharged in the Minnesota River Basin. The Minnesota River Basin General Phosphorus Permit is the tool being used to accomplish this goal. The Permit lists approximately 150 entities (wastewater treatment facilities and undersewered communities). It imposes a phosphorus limit on the 40 largest facilities and to all new facilities in the Basin. The facilities must apply for Permit coverage. The remaining 110 smaller facilities and undersewered communities did not receive a phosphorus limit through the Permit. The Permit generally requires that these entities monitor for phosphorus and develop a phosphorus management plan (PMP). These requirements will be implemented through individual permits.

Thirty-nine of the 40 facilities have applied for Permit coverage. The only facility that is not required to apply for coverage is the City of Le Sueur. Le Sueur is not required to apply for coverage yet because they use a stabilization pond (continuously discharging facilities must apply for Permit coverage). In addition, Granite Falls Energy has opened a new ethanol plant in the Basin and has applied for coverage under the Permit. Since Granite Falls Energy is a new discharger, they did not receive a phosphorus allocation under the TMDL. Granite Falls Energy is therefore required to purchase phosphorus credits from one of the other Permittees in order to offset their entire phosphorus loading. Granite Falls Energy has secured phosphorus credits from Mankato. The MPCA is anticipating that additional wastewater treatment facilities will participate in trading in the future. This is the first trade in the permit and the first of its kind in Minnesota!

The MPCA is working on implementing Permit requirements for the other 110 entities. The next step will be to reissue the individual permits to the smaller wastewater treatment facilities. This will be done in February and March, 2006. Reissued permits will contain the phosphorus monitoring and PMP requirements.

MINNESOTA RIVER PROJECTS RECOMMENDED FOR FUNDING: Seventeen proposals for projects in the Minnesota River Basin were submitted to the MPCA for federal 319 funding. Of the seventeen, seven were recommended for funding by the Project Coordination Team and the MPCA. Work plans were submitted on February 1 and funding is expected to be available after April 1. Implementation, education, and research projects such as these (along with other current projects) are essential to the basin-wide effort to clean up the Minnesota River. The successful proposals were:

Assessing Potential of Watershed and Stream Channel Modifications on Suspended Sediment, Turbidity and Nutrients in the Blue Earth River Basin –

University of Minnesota – This project will compare TSS, turbidity, and nutrient export in subwatersheds representing current row crop farming with subwatersheds with partial wetland and perennial vegetative restoration. Monitoring will occur above and below stream segments representing different levels of stability within Elm and Center Creeks. Assessing stream channel stability and channelization will provide information on meeting TSS, turbidity, and nutrient goals to achieve TMDLs in the Blue Earth River Watershed.

Dry Weather/Lines/Spring Creek Subbasin of the Chippewa River - Chippewa County – This implementation project targets septic system upgrades, tree plantings in riparian areas, nutrient management, residue management, alternative tile intakes, and nutrient insurance. A database for landowners will be established on the Chippewa River Watershed Project's Web site. Landowners will be able to access information on renting, sharing, and exchanging no-till equipment. In addition to focusing on local waters, this project addresses the lower Minnesota River dissolved oxygen TMDL by providing assistance with reducing the number of open tile intakes, promoting crop residue use, reducing direct discharges of sewage, and coordinating with retailers on phosphorus-free products.

Hawk Creek Watershed Project - Renville County - The objectives of this implementation project involve promoting key practices to reduce phosphorus and sediment such as alternative tile intakes and CRP buffers. Low-interest loan funding will be available to aid residents in the upgrade of non-conforming septic systems. The project will also assist the City of Willmar with an information/education campaign on municipal stormwater and wastewater management. Studies will assess stream-bank erosion and the impact of land use practices on water quality. This project also addresses the lower Minnesota River dissolved oxygen TMDL by targeting agricultural practices, non-conforming septic systems, and urban stormwater.

Interpreting a century's sediment in Redwood Lake - Redwood Cottonwood Rivers Control Area – Redwood Lake has filled in with sediment. The lake's depth now averages two to four feet; the sediment in the lake dates back to the year of the lake's creation in 1902. The goal of the project is to understand the sediment transport history following settlement. Depth to hard bottom, sediment volume, and trapping efficiency will be estimated. Pollen samples will be collected to identify major changes in watershed vegetative cover.

Testing Assumptions of Sediment and Nutrient Supply by Fingerprinting Glacial Sediment Sources - Brown-Nicollet-Cottonwood Water Quality Board - Preliminary estimates of stream-bank erosion in the Seven Mile Creek Watershed indicate that almost half of the sediment and 14 percent of the phosphorus load is from bank erosion while upland sources contribute nearly 40 percent of the sediment and around half the phosphorus load. This study will use isotopic fingerprinting techniques to more precisely estimate sediment and phosphorus sources. The study will also examine how erosion rates have changed over time. This information will also be useful in the Minnesota River Turbidity TMDL.

The Greater Blue Earth River Watershed Drainage System Management

Demonstration Focus on the Big Cobb River - Greater Blue Earth River Basin

Alliance – This project will assess how drainage impacts stream flows and will provide an opportunity for the Greater Blue Earth River counties to promote comprehensive drainage management. The counties will strive to balance hydrology, water quality, and agricultural crop production. Two drainage demonstrations will be installed in the Big Cobb River Watershed. Using drainage systems for water storage will provide information on how to reduce peak flows and reduce pollutant loading.

The Sediment in the System: Modeling the response of the Minnesota River to major forcing events at 10,000, 1,000, 100, 50, and 10 years ago

- National Center for Earth-surface Dynamics – Five critical time periods will be modeled to suggest how the river changed: 10,000 years ago when the river was created by the draining of Lake Agassiz; 1,000 years ago during a period of relative stability following severe climatic fluctuations; 100 years ago at the time of European settlement (land clearing, sod-breaking, and wetland draining); 50 years ago to represent the onset of modern practices; and 10 years ago as restoration efforts begin to impact significant acreages. The project will include collaboration of limnology, geology, and archeology. An overall goal is to better understand sedimentation and storage in the river system

STEVE MOE FILLS MSU'S GIS POSITION: Minnesota State University's Water Resources Center is happy to announce that Steve Moe has joined the staff. Steve will be filling the GIS, database management, and mapping role previously held by Cis Berg. Steve has an M.S. in Geography with a Biology minor from the University of North Dakota. He had been working as a contractor for the U.S. Air Force in Minot and prior to that he spent time with Ducks Unlimited's Great Plains Regional Office in Bismarck as a GIS Intern. Steve has a love for hockey (but he is a Sioux fan, so take that for what it's worth). Steve has a background in GPS/GIS mapping and remote sensing. He has also been active in internet mapping solutions (ArcIMS) and has experience in database management. With Steve on board, the Water Resources Center is again prepared to offer a wide variety of mapping, GIS, and data management services – all of which are critical in the continuing education of students. Please stop by when you get a chance and welcome Steve.

SHALLOW LAKES FORUM SCHEDULED FOR APRIL: The Shallow Lakes Forum will be held on April 5 – 6 in Willmar, Minnesota. The Shallow Lakes Forum encourages protection and management actions that recognize and balance the needs and interests of shallow lakes stakeholders, who include public and private interests, conservation and recreational interests, and human and wildlife interests. Co-sponsored by the Minnesota River Board, the Forum includes six stakeholder groups including Ducks Unlimited, Inc.; Minnesota Department of Natural Resources; Minnesota Lakes Association; Minnesota Pollution Control Agency; Minnesota Chapter, American Fisheries Society; Minnesota Board of Water and Soil Resources; Water Resources Center, Minnesota State University, Mankato; and The Wildlife Society (Minnesota Chapter). For more information, visit <http://www.shallowlakes.info>

INTERACTIVE HYDROGRAPH ILLUSTRATES IMPACT OF RAIN AND SEDIMENT IN A SMALL WATERSHED: Combine stream monitoring and rainfall data with computer

graphics and what do you get? A visual reality tour of how rainfall and soil erosion impact a small watershed in southern Minnesota. In a collaborative effort, the Minnesota River Basin Data Center at Minnesota State University, Mankato and the Minnesota Pollution Control Agency have created an extraordinary educational tool called the "Interactive Hydrograph." The hydrograph provides a "point and click" illustration of soil erosion from relatively flat agricultural land. By clicking on the individual data points, users see a series of photos showing how an agricultural field, an adjoining ditch, and a river system react to rain events throughout the growing season. Using discharge and water quality data collected from a Minnesota Department of Agriculture monitoring site, the percentage of the seasonal sediment load delivered to each data point is also presented. The "Intro" takes users through a self-guided tutorial of the site and what it represents. The "Rainfall" section provides an interesting overview of rainfall dynamics that occurred throughout the monitoring season. Check out the interactive hydrograph on Minnesota River Basin Data Center web (please note: Flash Player is required to view this site, file size is 3.2mb.) - <http://mrbdc.wrc.mnsu.edu/mnbasin/>

If you have any questions, please contact the Water Resources Center at (507) 389-5492 or Pat Baskfield (MPCA) at (507) 389-1648

QUOTE OF THE WEEK: "The most rewarding things you do in life are often the ones that look like they cannot be done." - Arnold Palmer

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