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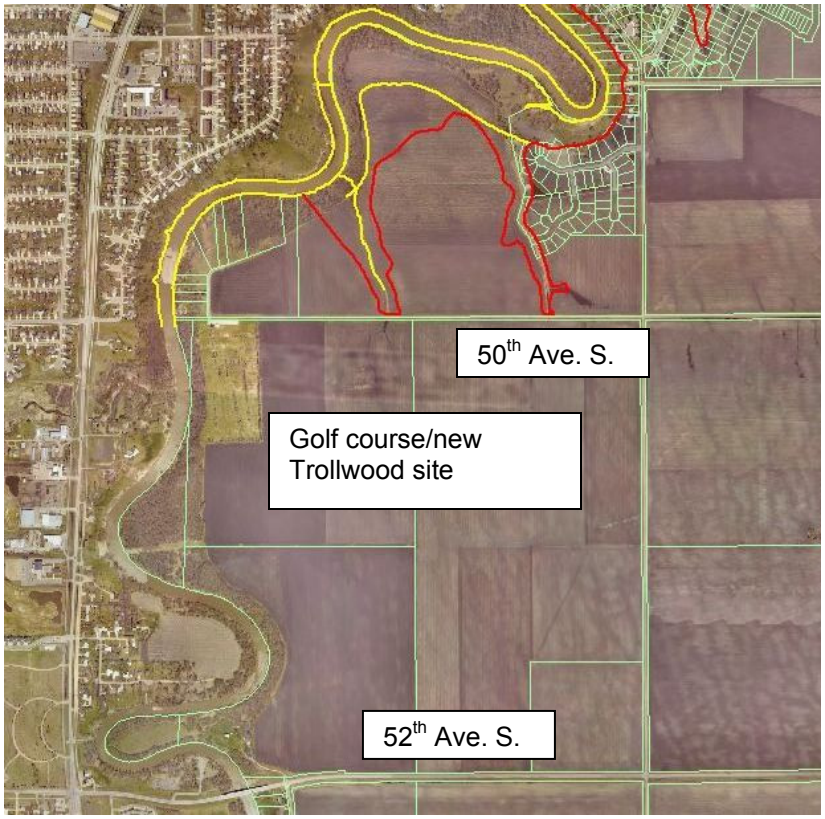
Red River Basin Water Quality Team examines greenways as a water quality protection strategy at August 30 meeting

Vegetated buffers prevent or reduce sediment entering surface waters in agricultural areas. In urban areas, that ecological function is being performed by buffers known as greenways. Urban greenways are open spaces that link natural or man-made features that are protected and managed for conservation, recreation or transportation purposes.

The City of Moorhead is actively establishing a greenway on the Red River in the southern part of the city. On the image at right, the Red River corridor is traced in yellow with the 100-year flood plain in red, ending at 50th avenue south (current city limit). Just south of 50th avenue along the river is the Town and Country golf course and the new Trollwood Performing Arts land. The city is working to keep the existing greenspace along the river as is or used for park land. The 52nd Ave S (Fargo) bridge is at the bottom of the image. Provided by Andy Bradshaw, City of Moorhead Engineering and Wastewater.



Since the devastating floods of 1997, greenways have been used as a flood damage reduction strategy in urban areas along on the Red River of the North. And now, greenways linking several urban areas are proposed along the Red Lake River, Minnesota's Wild Rice River and the Wild Rice River west of Fargo.

For example, Moorhead no longer allows individual residential lots to extend to the rivers' edge. The city has been purchasing river front land as it becomes available and changing zoning to prevent development in those areas. The city has worked with state agencies and willing land sellers to extend green space south of town.

A Greenway is a corridor of protected open space that is managed for conservation and/or recreation. The common characteristic of greenways is that they all go somewhere. Greenways follow natural land or water features, like ridges or rivers, or human landscape features like abandoned railroad corridors or canals. They link natural reserves, parks, cultural and historic sites with each other and, in some cases, with populated areas. Greenways not only protect environmentally sensitive lands and wildlife, but also can provide people with access to outdoor recreation and enjoyment close to home.

Within the landscape, greenways serve at least three major functions: they protect and/or enhance remaining natural, cultural and historical resources; they provide linear open space for compatible human use; and they maintain connectivity -- between conservation lands, communities, parks and other recreational facilities, and cultural and historic sites. Connectivity is a critical landscape characteristic important to the health, well-being, and aesthetic values of human communities and vital to the maintenance of functional native ecosystems. While the ability of greenways to "link" other resources is important, not every greenway is a connector. Some stand on their own as important linear recreational resources, like trails and bikeways.

Greenway planning, development and implementation will be the topic for the Red River Basin Water Quality Team at its meeting 10 a.m., Monday, August 30, in the public meeting room of American Crystal Sugar, 101 N. 3rd Street, Moorhead (south of the Hjemkost Museum on the Red's eastern bank).

Presenters are:
• Genevieve Thompson, Audubon Society, on the Greenway on the Red, which links the entire river into Canada;
• Helen Cozzetto, Planner for the Minnesota Department of Natural Resources, on the greenway in East Grand Forks and Grand Forks, and the Red Lake Corridor project;
• Linda Kingery, Northwest Minnesota Sustainable Development Project, on the Red Lake Corridor Project; and
• Henry Van Offelen, Minnesota Center for Environmental Advocacy, on the Wild Rice River (Minnesota).

The meeting is open to the public.

Red River Basin Water Quality Planning Principles summarized

The Red River Basin Water Quality Plan was adopted in 1999 and has been updated. The new format is abbreviated to meet the Minnesota Pollution Control Agency strategic plan of using planning to guide the development of its biennial work plan. Following is the draft summary of the Red River Basin Water Quality Plan's updated organizing goal, objectives, stressors, and strategies. The Red River Basin Web page information will be updated with this plan in early September.

Long-term goal:

Manage Minnesota's surface water resources so that water quality of the Red River Basin of Minnesota contributes to and does not detract from the ecological health of Lake Winnipeg; using drinking water, aquatic life, and recreational use as key indicators.

Objectives:

1. Monitor and assess conditions of the twelve subwatersheds
    - Bois de Sioux, Otter Tail, Buffalo, Red Headwaters, Wild Rice and Marsh Creek, Sand Hill, Red Lake (including Clearwater and Thief), Snake, Tamarac, Middle, Two and Joe
2. Reduce sediment entering the tributaries and the Red River of the North
    - Minimize the potential for surface runoff
    - Reduce peak flows
3. Use existing regulatory tools to protect water quality:
    - Ensure discharge permits are in compliance
    - Improve individual onsite sewage treatment systems
    - Implement stormwater management practices
4. Minimize, reduce and manage practices and the use of materials that can create imbalances in aquatic systems;

Stressors:

- Changing agricultural practices, which increase the amount of crop land farmed intensively, remove existing wind barriers, and removes natural functions that protect water quality, especially buffers and barriers that influence the movement and speed of overland runoff;
- Expanding development centers, especially in sensitive locations such as riparian areas, wetlands and lakes, which increase water use and impervious surface which accelerates runoff;
- Manage human activities to minimize negative environmental impacts – including operation of impoundments,

Strategies:

1. Buffer waterways in agricultural areas
2. Provide for upland conservation measures, such as conservation tillage on ag lands, stream restoration in the lake plain and water storage in the beach ridges;
3. Restore impaired waterways.
4. Encourage research that helps achieve implementation of these strategies.

TMDLs in the Red: Notes from the Red River Basin Water Quality Team July 26 Meeting

Note: The Red River Basin Water Quality Team meets monthly to review water quality issues of concern to resource managers. This is a summary of presentations made at the July 26th meeting. A summary of meeting notes will be posted to the MPCA's Red River Basin Web site after Labor Day.

Overview - Restoring Impaired Waters in the Red River Basin

Molly MacGregor, MPCA basin coordinator, opened the meeting with background information:

TMDL stands for Total Maximum Daily Load; it derives from Section 303D of the national Clean Water Act.

A TMDL is a study required by the federal rule when a portion of a waterbody (a portion because we monitor by segment) has been determined to not meet state and federal water quality standards.

Every two years, MPCA evaluates whether the state's public waters "attain" water quality standards. To do this, the Agency reviews data over the past 10 years and convenes resource managers who work with water quality. If more than 10 percent of the samples for the past 10 years do not meet standards, then the water body is considered "threatened" or "partially supporting" its designated uses. If 25 percent or more of the samples do not meet standards, then the water body is considered "not supporting" its designated uses. Water bodies classified as threatened or non-supporting are candidates for listing as "impaired."

Every two years, MPCA lists its impaired waters. Currently, there are more than 2,000 stream segments or lakes statewide listed as impaired. About 70 percent are listed for mercury or PCBs. Parts of 22 streams or rivers and 45 lakes are listed as impaired in the Red River Basin for conventional pollutants such as fecal coliform, turbidity, low oxygen, or biotic integrity. The state must prepare a study of the total maximum daily load for the pollutant of concern for each listed reach.

The study must verify the impairment, determine the sources of the impairment, define the load of the pollutant that each source contributes, and recommend strategies to reduce the load to meet water quality standards. The state must submit these studies to the U.S. Environmental Protection Agency for approval. The public can be involved in these studies from the beginning; in fact, most of the impaired waters studies in the Red River Basin are being led by local government or nonprofit groups.

TMDL process is:

1. Determine sources of pollutant in the impaired reach and what percentage point and nonpoint sources are contributing to problem
2. Determine what percentage load reduction each category or contributor should achieve
3. Define strategy to reduce the pollutant load
4. Implement programs to achieve these load reductions

It's important to involve all stakeholders in the process because no mechanism exists for enforcing compliance of non-point sources. To be accepted, solutions need to be meaningful, credible, acceptable and supportable.

MPCA's TMDL Program Status/Funding
Faye Sleeper, MPCA Manager for Water Policy and Coordination, Regional Environmental Management Division

Increasing attention is being paid to impaired waters in Minnesota. That's the good news. The bad news is the funding needed for current and future TMDL projects in the state now exceeds the level of funding available for TMDL efforts.

The MPCA believes the impaired waters issue is bigger than MPCA and requires broad statewide support and attention. The MPCA commissioned a broad group of stakeholders to look at funding needs and recommend funding options. This group determined Minnesota's annual water quality needs to be approximately $75 million a year ($7-$8 million for monitoring, the bulk for program implementation) and recommended a $36 fee on all households and businesses in the state. This recommendation did not go anywhere in the Legislature and Governor Pawlenty did not endorse it. The group is reconvening and will be developing new proposals, including recommendations for funding.

With the increase in demand for funding comes a new need to prioritize impaired water projects. According to Sleeper, the current prioritization process is as follows:

1. List begins with projects submitted and recommended by regional offices.
2. Projects with the oldest start dates and are most ready to get started get priority
3. "Special" projects, for example those involving NPDES permits that are being held up due to TMDL projects, may get bumped up in the list

TMDL Project Status Reports

Red River – Moorhead – fecal and turbidity
Presenter: Jessica Martin, NDSU grad student and project investigator
Study Sponsor: Red River Basin Commission
Study Team Participants: MPCA, City of Moorhead, North Dakota Department of Health, City of Fargo, EERC, River Keepers, Clean Water Action

Monitoring Complete; Modeling and Analysis in Progress; Study report due to MPCA by December 2004.

The impairments may be related to stormwater discharges to the Red River of the North. There are hundreds of outfalls, including agricultural ditches.

The impairment is specific to Minnesota rules, although North Dakota Department of Health has listed the river as impaired in similar locations. North Dakota Health and the City of Fargo are cooperating in all phases of the project.

The Red River Basin Commission is the project sponsor and has contracted with North Dakota State University's Civil Engineering Department for monitoring and technical analysis. An advisory committee meets periodically.

Issue encountered: Correlation between total suspended solids (surrogate parameter being used to determine turbidity) and turbidity measured in samples taken at storm sewer outfalls was different than the correlation between TSS and turbidity in samples taken from the river itself. Work needs to be done on model to address this fact before making final determinations on loads.

Clearwater River (trout stream portion) – fecal; Walker Brook – low DO
Presented by Cory Hanson (Clearwater) and Dr. Robert Melchior, Walker Brook
Study Sponsor: Red Lake Watershed District
Study Team Participants: MPCA, DNR, Clearwater SWCD and Local Water Plan; Beltrami SWCD and Local Water Plan, wild rice farmers
Project Status: Draft Report Available December 2004

Recommendation to delist the Clearwater TMDL after improvements resulting from upgrades to Bagley wastewater treatment plant. Recommendation to delist Walker Brook since low DO is likely the result of fact that base flow consists mostly of groundwater and rich fen inflows which are naturally low in dissolved oxygen.

Lower Otter Tail – fecal and turbidity
Location: Lake Breckenridge to confluence with the Bois de Sioux River
Presented by Mike Vavricka, Detroit Lakes MPCA
Study Sponsor: MPCA
Study Team Participants: U.S. Geological Survey, Wilkin SWCD and Local Water Plan **,**
Impairments: Fecal coliform and turbidity
Project status: Final Report to U.S. EPA December 2004

Recommendation will be to delist reach for fecal coliform bacteria, although the local units of government propose identifying and correcting failing individual on-site sewage treatment systems.

Monitoring confirmed that the Lower Otter Tail does not meet standards for turbidity. Nearly two-thirds of the samples collected at the 11th Street Bridge in Breckenridge did not meet water quality standards.

For turbidity, we determined that we needed to reduce the amount of sediment entering the Lower Otter Tail at the highest flows (90 percent of peak) by approximately 7,000 tons (that's about 420 dump trucks of dirt) annually to achieve the water quality standard. The study also found that the loading is greatest when the flows are the highest.

The TMDL process says that all sources of sediment should be identified and that a proportion of the overall load should be assigned to each source. For the Lower Otter Tail

between Lake Breckenridge and the 11th Street Bridge, the only source of sediment is the adjacent landscape – primarily row crop agriculture.

We know that there are at least four ways sediment gets delivered to the river from the landscape:

1. Wind erosion – which we know is a critical issue for this watershed, especially what is deposited in ditches in the early spring and then runs off with the first snowmelt or rain event;
2. Sheet erosion – erosion caused by the more intense storm events that carries eroded material to a larger conveyance;
3. Gully type Erosion at the confluence of field ditches and receiving tributaries (streams or ditches) and
4. Streambank erosion –erosion in the channel at peak flows.

Strategies to Reduce the Pollutant Load:
Local resource managers and stakeholders (local water task force, soil and water supervisors, county commissioners) agree it's reasonable to target management measures to reduce the loading for the more intense events. Therefore, we need to install barriers that prevent material carried by wind from entering streams and ditches, and assure that movement of precipitation during extreme events can be stored for even a short time close to where it falls.

Measures to reduce the first three source categories are:

1. Soil conservation practices designed to reduce wind erosion;
2. Implementation of an erosion ordinance;
3. Upland best management practices, such as conservation tillage, which will reduce overland runoff during storms; and
4. Riparian practices such as buffer strips that will stabilize the riparian area.

Measures needed to reduce streambank erosion are:

1. Best Management Practices to hold the water back and meter it out more slowly. Soil and surface water storage can come from practices like residue usage, native grass plantings, wetland creation and road ditch culvert downsizing.
2. Channel restoration practices which will stabilize the streambank erosion include practices try to restore the stability by returning the streams natural form. Features like: armoring the banks with bioengineering techniques, managing the thalweg with rock weirs or veins are measures that need to be placed on top of a bigger effort to encouraging stream functions such as meander, access to a working flood plane and reintroducing pool riffle and run characteristics.

In discussion, team members acknowledged the need to restore wetlands in the area to slow runoff. Question again, how do you convince farmers to turn highly productive farmland into wetlands? Need to get prioritization through WRP.

Michael Murphy, U.S. Fish and Wildlife Service, suggested there are often several areas suitable for wetland restoration that go unnoticed until you look for them. Perhaps areas of lower Otter Tail deserve a close look for these areas and focus on those.

Workshops to be held in September on local government role in TMDLs

The role of local government as it relates to the state's impaired waters program will be explored at one-day workshops around the state in September. MPCA, BWSR and the Association of Minnesota Counties are cooperating on the sessions which will help local officials understand the roles and opportunities for cities and counties in Minnesota's impaired waters program. The workshop will be Tuesday, September 21 at Crookston's Northland Inn, and Friday, September 24, at St. Cloud's Best Western Americanna Inn. Contact dweirens@mncounties.org for more information

Clean water grant applications open: storage, erosion reduction and bacteriology are proposed from the Red

The MPCA opened its annual Clean Water Funding round August 9. The application form can be found on-line at: http://www.pca.state.mn.us/water/cwp-319.html#grantform

Projects under consideration for funds in the Red River Basin include:

- Development of a small wetlands storage project in the
- Wild Rice Watershed;
- Erosion reduction in the Sand Hill Watershed, and
- Bacteriology of fens in the Clearwater Watershed.

Applications are due in St. Paul October 8. Projects will be reviewed and ranked by the Red River Basin Water Quality Team in October.

Limiting phosphorus use on lawns

Phosphorus can result in excessive algae growth when runoff is allowed into lakes and rivers. Since Minnesota lawns typically have adequate levels of soil phosphorus for healthy turf grass growth, the law protects lake and river quality by limiting unnecessary applications of phosphorus lawn fertilizer. Becker County and the City of Detroit Lakes are the only local government units limiting use of phosphorus in fertilizers.

● As of January 1, 2005, fertilizers containing phosphorus cannot be used on lawns in Minnesota. This is an expansion of the current law which restricts use of phosphorus in lawn fertilizer to 0% in the Twin Cities seven county metropolitan area and up to 3% in Greater Minnesota.

● IT IS NOT A BAN. Fertilizers containing phosphorus may be used on lawns if a soil test indicates that it is needed or if a new lawn is being established. These restrictions apply to lawn fertilizer and do not apply to fertilizers used for agricultural crops, trees, flower and vegetable gardening, or by trained golf course staff.

● With a few exceptions, the new state law supersedes local community ordinances. However, a few communities passed ordinances restricting the *sale* of phosphorus lawn fertilizer which remain in effect after January 1, 2005.

A copy of the law, list of communities and ordinances limiting phosphorus fertilizer use and an excellent educational handout are available on the Minnesota Department of Agriculture Web site at www.mda.state.mn.us. Click on "Water and Land," then click on "Lawn Care and Water Quality" and scroll down to the sections on phosphorus.

The *Red River Reporter* is a periodic report to (and about) the Red River Basin Water Quality Team and others working in water quality. The team advises the Minnesota Pollution Control Agency on water quality management, improvement and protection strategies for the watersheds of Minnesota's Red River Basin.

The ***Reporter*** is produced by Molly MacGregor at the MPCA office in Detroit Lakes, Minn., with editorial and design assistance provided by Daniel Olson. Molly welcomes your comments and news.
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