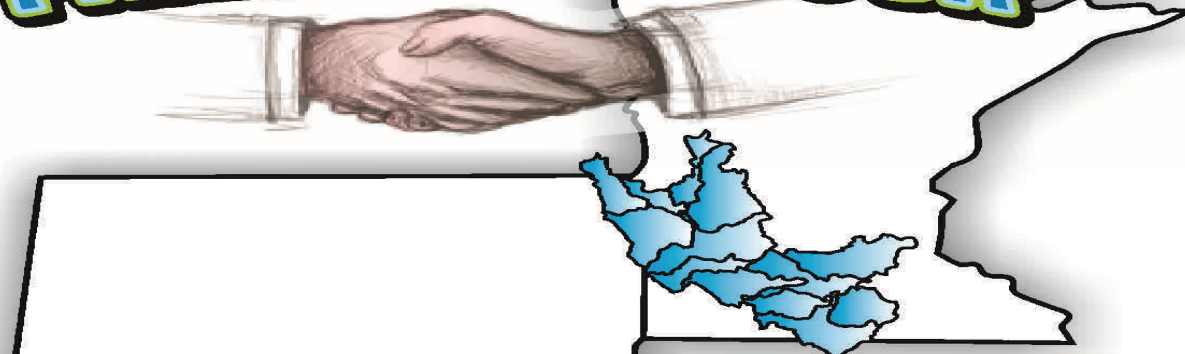


FRIENDSHIP TOUR



LQP-YELLOW BANK WATERSHED DISTRICT
UPPER MINNESOTA RIVER WATERSHED DISTRICT
EAST DAKOTA WATER DEVELOPMENT DISTRICT

On July 11, 2012 a Minnesota/South Dakota Friendship Tour was held in the Upper Minnesota River Watershed District featuring water quality information from an intensive 2 year water monitoring program completed in 2010 and 2011. The event was coordinated by Lac qui Parle-Yellow Bank Watershed District, Upper Minnesota River Watershed District and East Dakota Water Development District and funded by a grant from the Minnesota River Board.

The day was filled with lots of sunshine and warm temperatures. Tour attendees met at the Lakeside Park in Ortonville, MN—which is the head waters of the Minnesota River, enjoyed a light breakfast of assorted pastry rolls and muffins, juice and coffee. Two chartered air-conditioned buses transported 90 people which varied in ages from 5 years old to about 80 years old—I



I didn't ask. There were plenty of agency staff present from both MN and SD as well as many interested residents of the watershed. Everyone received a folder that outlined the tour route and provided supplemental information. Tour guides provided interesting trivia and information as the buses travelled west into South Dakota and climbed the eastern flank of the Coteau des Prairies and experienced an approximate 700 foot difference in elevation since leaving Big Stone Lake. The elevation changes dramatically here—it drops over 1,100 feet. From Big Stone Lake, the water moves down the Minnesota River and then the Mississippi River, where it eventually reaches the Gulf of Mexico below New Orleans. The drop from Ortonville to the Gulf is only 966 feet.

Lake Farley, Milbank SD

The first stop was in Milbank, SD at Lake Farley near one of the monitoring sites of the 2 year water monitoring project. Watershed Assessments in MN and SD were discussed by Jay Gilbertson, Administrator for East Dakota Water Development District. He explained water classification differences in MN and SD, what was monitored and why we should be interested in the results.



Brown Earth Indian Church and Minnesota River History

This location gave us a vantage point to look east and view the breadth of the Minnesota River Valley that we just climbed. A summary of the regional geology of the upper Minnesota River watershed was provided by Jay Gilbertson. He noted that rocks from three vastly differing time periods can be found in the region.

Granite, and related rock types, exposed near Milbank and in the MN River Valley below Ortonville date from over 2,600,000,000 years ago. Once the core of great mountain ranges, these rocks are now quarried for use as building stone, kitchen counter tops and monuments. The rock for the FDR Memorial in Washington, D.C came from the quarries by Milbank.



The historical site of the Brown Earth Indian Church established in 1875 was built by 25 families from the Sisseton-Whapeton Reservation. This was the first log cabin church in Grant county, SD.

Minnesota and North Dakota, and carried rocks from this area far to the south. The first advances date back to around 2,000,000 years ago, but the current landscape was mostly shaped by the last series of ice movements between 25,000 and 11,000 years ago. When the ice retreated for the last time, a great lake (Lake Agassiz) was formed between the retreating ice front and the continental divide at Browns Valley. Water pouring out of the lake created the great trench through which the Minnesota River now flows.

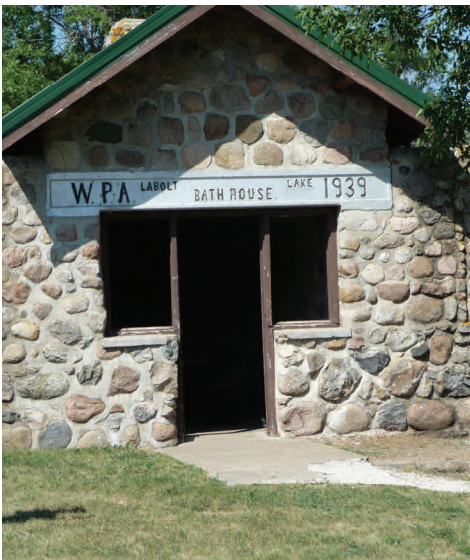
Flood Control Projects

Kerry Netzke of Area II Minnesota river Basin Projects, Inc. spoke about flood control projects in western MN and the crossover flooding that occurs in the MN River basin. This means that floodwaters from one watershed jump into the adjoining watershed lying below in a stair-step fashion. Area II provides technical and financial assistance to local government units for engineering, land rights acquisition, and construction cost for installation of floodwater retarding/retention structures.



Kerry Netske; Area II, Marshall, MN

LaBolt Dam Recreational Area



This is a bath house constructed by W.P.A. in 1939

LaBolt Lake was created when WPA constructed an earthen dam across a tributary of the Yellow bank River in 1937. It is about 12-acre and is popular fishing and swimming. In 1983, LaBolt citizens were determined to restore the lake and park to its historical value. In cooperation with East Dakota Conservancy Sub-District (now East Dakota Water Development District) a proposal was drafted to dredge the lake and repair the dam and spillway. Area II provided money for the restoration of earthen dam and concrete spillway.



A disc golf basket.



The LaBolt Lake Recreation Area also has a 9-hole Disc Golf Course. Disc Golf is similar to traditional ball golf except that instead of golf balls and clubs, players throw a disc into a basket or at a target. A demonstration of disc golf was provided by the mayor of LaBolt and Jay Gilbertson an avid disc golf player.

Refreshments were served in the picnic shelter.

Dakota Granite Quarry

The tour buses took us through the Dakota Granite Quarry site. We were able to see the granite spoil piles for quite a distance along the coteau. When the granite is extracted from the ground the color needs to be consistent. When it crosses into other colors or break a slab off during the fabrication process, everything gets tossed onto the spoil piles. Some of the waste is now being crushed and used to chip seal the local paved roads. The stone that makes up the FDR Memorial in Washington D.C. , is from these quarries.



Filling a transparency tube that provides a measurement of water clarity.

Noon Lunch at Radermachers on the South Fork of the Yellow Bank River

Citizens for Big Stone Lake prepared and served the lunch at the Bud and Lou Radermacher farm located on the bluffs of the South Fork Yellow Bank River. The Radermacher Brothers were named Lac qui Parle Soil and Water Conservation District Outstanding Conservationists in 2011. Displays were set up in the spacious machine shed by the Citizens for Big Stone Lake, LqP SWCD, LqP-Yellow Bank Watershed District and the Northeast Glacial Lakes Watershed

Big Stone National Wildlife Refuge

The Refuge, established in 1975, consists of 11,586 acres. There is 1,700 acres of native or unplowed prairie acres amidst the tall grass prairie. Eleven miles of the Minnesota River flows through the Refuge. The tour buses drove along the northern edge and then stopped at the Yellow Bank River in the refuge.

Monitoring Site at the Yellow Bank River

Jeremy Hinke, Kevin Christianson and Lindsey Thielen of EDWDD showed us how the water quality samples are collected and how the discharge (water quantity) is measured. In the water quality study completed in 2010 and 2011 it was important to use protocols accepted by both states. Samples were sent into a state approved laboratory for analysis. Dennis Skadsen, Day County, SD Conservation District demonstrated the collection of stream insects and crustaceans. It is both interesting and important to look at the fish and insects that live in the waters. Some groups of insects and fish can only live in clean water while others can live in more polluted water.



Improvement and Protection Project. Dennis Skadsen, project coordinator of NE Glacial Lakes Project reviewed programs in SD to improve the water quality. SD has received funding through a 319 grant for the Upper MN River watershed in SD to assist landowners with the cost of installing best management practices. Mary Homan, Lac qui Parle-Yellow Bank Watershed project coordinator shared information on a grant from MN Pollution Control Agency that is designed to protect the North and South Fork Yellow Bank from receiving additional sediment. The grant will provide the watershed with incentives or cost share for installing filter strips, removing open tile intake, and constructing erosion control practices in their fields.



SD Yellow Bank Bacteria TMDL

A SD draft TMDL for bacteria impairments in the Yellow Bank was open for public comment. There are no direct point sources, LaBolt is the only community discharging. Nonpoint sources accounted for a variety of livestock, wildlife and humans. To protect the water downstream in MN the SD TMDL will be based on MN standard for E. coli threshold for Class 2 waters.

Lac qui Parle-Yellow Bank TMDL

There are 19 impairments on 11 reaches in the Lac qui Parle and Yellow Bank Rivers and tributaries. The impairments are for excess bacteria and turbidity (sediment) and for low dissolved oxygen.

The primary contributing sources to bacteria were found to be over-grazed riparian pastures and noncompliant septic systems including straight pipe septic systems in dry conditions. Surface applied manure, over-grazed pastures and feedlots without runoff controls during wet conditions.

The primary contributing sources for the turbidity impairments were found runoff-driven such as delivery of sediment to river from upstream areas and/or bank instability under high flows following significant storm events during spring and summer months.

The likely causes for the low dissolved oxygen impairment include low-oxygen discharge headwater and nonpoint sources that results in excessive sediment oxygen demand.

The priority areas will be the upper reaches of the Lac qui Parle and Yellow Bank Rivers. It is expected that addressing the upper reaches of the system will have a significant effect on reducing pollutants in the lower reaches of the river systems.

The TMDL recently was open for public comments and are waiting for EPA to give final approval which will make the watershed eligible for additional funding for improving water quality locally.

Whetstone Restoration Project

Dianne Radermacher, Administrator of the Upper Minnesota River Watershed District presented information on the Whetstone River which is a tributary of the Minnesota River. The river is approximately 35 miles long and begins in the Coteau des Prairies region of South Dakota. The watershed is very steep with approximately 1,000 feet of fall from the headwaters to the outlet. The river originally flowed directly into the Minnesota River, but the river now flows into Big Stone Lake. The river was diverted into Big Stone Lake in the 1930's to increase Big Stone Lake levels during times of drought. In several recent years high

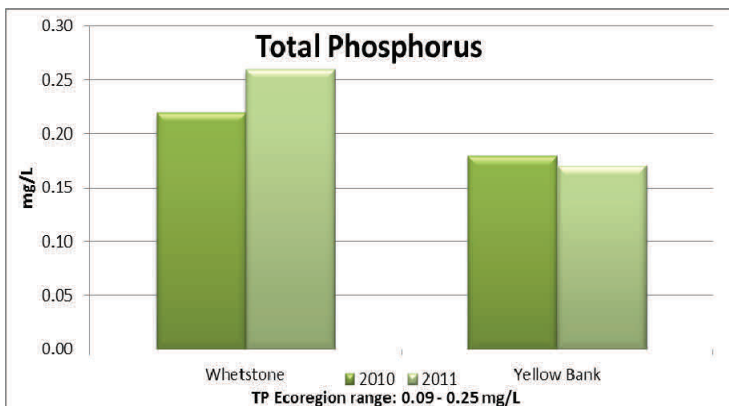
flows have caused flooding in Big Stone Lake, with the Whetstone River contributing a substantial amount of water, sediment and nutrients. The proposed project includes a feasibility study to restore flows to an estimated 8,500 feet of the whetstone River between Big Stone Lake and the Minnesota River. This would be done with a series of box culverts (or a similar hydraulic structure) with a total of 100 feet through two roadways, to divert a portion of the whetstone River flows into its original channel. The Preliminary Study costs are estimated to be \$90,000.00. Funds are currently being local governments and Citizens for Big Stone Lake.



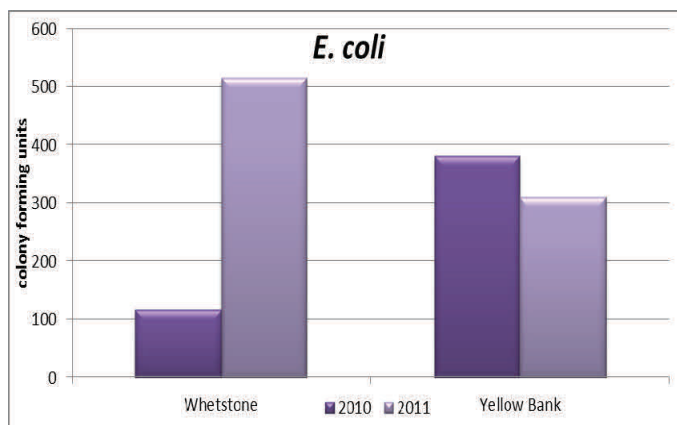
Upper Minnesota River Watershed Water Quality Assessment Project

Kelli Nerem, MPCA presented the results of the recently completed cross-border watershed assessment of the Whetstone and Yellow Bank Rivers. Total Phosphorus is a key nutrient in

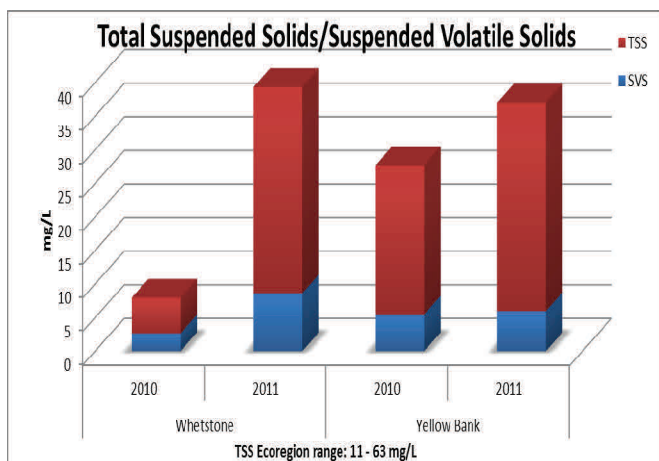
the growth of plants. Therefore, the amount present in water greatly affects the amount of algae and other aquatic plants. The Whetstone shows higher amounts of Total Phosphorus in 2011. *E. coli* bacteria are present in the intestines of all warm-blooded mammals. *E. coli* is an indicator of pollution from sewage, feedlot runoff, land runoff, and industrial waste and suggest presence of



disease-causing organisms. Sunlight, nutrients levels, temperature, sediment type and amount, flow and runoff amounts affect the presence of *E. coli* bacteria. The Whetstone had a large reading one time that affected the average in 2011. The Yellow Bank reflects higher averages in both years. Total suspended solids is a direct measurement of the concentration of suspended particles in water and it makes the water appear cloudy and dirty. Suspended Volatile Solids measures only the volatile solids that are organic solids. In 2011 both rivers had increased sediment readings. Nitrite+Nitrate



Nitrogen is the inorganic form of nitrogen. The primary concern for high nitrate levels is found in drinking water that can result in methomoglobinemia (baby blue syndrome). Nitrite concentrations are generally not a major concern so lab analysis combines nitrate and



nitrite levels. Fertilizer runoff affects the amount of Nitrite+Nitrite in streams. Concerns are when readings are over 10 mg/L.

