First of all, A VERY BIG THANK YOU to all of the Citizen Stream Monitors who spent the time to monitor the rivers and streams of Faribault County. It's great to see such a group of dedicated volunteers watching over our local water bodies. It is the commitment of people like yourselves who have helped to shape the direction of work done by resource managers throughout the county.

- Faribault County SWCD

CSMP Refresher…

The Citizen Stream Monitoring Program (CSMP) works to combine the technical expertise of the Minnesota Pollution Control Agency (MPCA) and local agencies such as the Soil and Water Conservation District (SWCD) with local knowledge of interested citizens to develop a statewide network for monitoring the state's 92,000 miles of streams. The network works to increase understanding of how human activities, such as land use, affect water quality.

The goal of the CSMP is to help determine the condition of Minnesota streams, provide the opportunity for anyone interested to participate, facilitate awareness and understanding of water quality issues, and promote shared responsibility for protection of our water resources.

During rainfall events, stream transparency can decrease as sediments are delivered to streams in runoff. In addition, sediments may carry other pollutants to streams. CSMP records of rainfall amount, stream stage estimates, and transparency readings can tell us where runoff may be contributing sediment and other pollutants to streams. Changes over time can also help to measure improvements or declines in water quality. Increased monitoring will help identify problems, develop strategies, prioritize activities for improving water quality, and track progress toward improvement.

The Year In Review…

The first ever group of Faribault County citizen stream monitors was started in the beginning of June. From June through October, 7 volunteers monitored the water quality of 7 sites on 5 major streams and rivers. Sites were located on the Blue Earth River, East Branch Blue Earth River, Elm Creek, County Ditch 3, and the Cobb River.

Table 1. 2003 Citizen Stream Monitors and Site Locations

NAME	*LOCATION*	*RIVER*
Russell Bathke	Dunbar, Sec 3 on the Waseca/Faribault Co Line	Big Cobb River
Kay Bogan	Blue Earth, Sec 17 on the East Street Bridge	East Branch BE River
Pam Fuhrman	Verona, Sec 4 on 330th Ave W of Winnebago	Elm Creek
Orville Goemann	Foster, Sec 8 on County Road 16	East Branch BE River
Kerry Kelleher	Winnebago, Sec 3 on the BE/Faribault Co Line	Blue Earth River
David Ward	Lura, Sec 4 on the Blue Earth/Faribault Co Line	County Ditch 3
Robert Worner	Blue Earth, Sec 7 on County Road 16	Blue Earth River

August and September brought considerably lower than normal rainfall amounts with one of the sites located on the Cobb River unable to be monitored due to a dry river bed. The volunteer commented that he had not seen this since the mid 1980's. By the end of the year seasonal rainfall amounts were being reported between 7 and 13 inches across the county.

2003 Data Summary…

The mean stream transparency and total rainfall are listed in Table 2 for each site. With this being the first year of monitoring for the county, there is no data from prior years to compare.

The stream with the highest average transparency (28) was the Main Branch of the Blue Earth River at County Road 16 in Blue Earth. The next highest site was again the Blue Earth River at the Blue Earth County line with an average reading of 22. The site with the lowest mean transparency (11) reported was the Cobb River at the Blue Earth County line.

TABLE 2. 2003 SUMMARY OF CITIZEN MONITOR DATA

Citizen Monitor/ Monitored Water Body	*# of Samples*	*Mean cm*	*Min cm*	*Max cm*	*# > 60*	*Total Rain Inches*	*Collection Dates*
Russell Bathke / **Cobb River**	13	11	5	17	0	13.08	6/3/03-10/12/03* *Dry River Bed 9/03-10/03
Kay Bogan / **East Branch Blue Earth River**	31	17	8	44	0	9.17	6/4/03-10/10/03
Pamela Fuhrman / **Elm Creek**	25	18	8	60+	1	10.53	6/5/03-10/14/03
Orville Goemann / **East Branch Blue Earth River**	31	15	9	26	0	9.53	6/3/03-9/30/03
Kerry Kelleher / **Blue Earth River**	19	22	14	35	0	7.34	6/5/03-10/13/03
David Ward / **County Ditch #3**	11	17	10	30	0	11.43	6/7/03-10/11/03
Robert Worner / **Blue Earth River**	40	28	10	48	0	9.46	6/5/03-10/7/03

Mean: Mean of recorded stream transparencies (centimeters)
Min: Minimum transparency reading recorded (centimeters)
Max: Maximum transparency reading recorded (centimeters)
 # > 60: Total number of recorded stream transparencies > 60 centimeters
Total Rain: Total amount of rain recorded (inches)
Collection Dates: Length of time that either rainfall or transparency was recorded

Understanding the Transparency Reading…

The transparency tube has become a common tool used to understand and measure stream conditions. The greater the reading in centimeters, the greater the water clarity. A reading of less than 20 cm is poor transparency and often occurs in ditches and streams after rainfall events. If poor transparency is the norm rather than the exception, this may indicate a more serious, long term problem. Readings between 20 and 40 cm are considered moderate transparency and consistent readings of 40 cm and above during both high and low flow conditions indicate very good water quality.

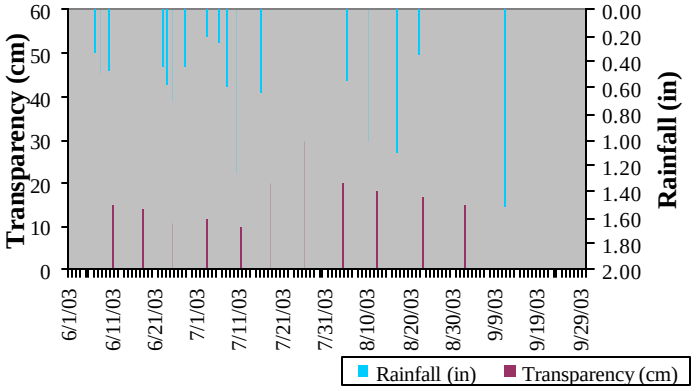
Water transparency can be affected by a number of factors. For the majority of water bodies, the amount of suspended solids is the most important factor. In rivers and streams, soil particles are the primary sources of suspended solids. Transparency is a good indicator for some key water pollutants and a low transparency is generally the result of excessive sediment. Excessive soil material is a pollutant in itself as it can degrade the habitat of fish and other stream life and reduce light penetration necessary for aquatic life. In addition, soil

particles may carry pollutants such as phosphorus attached to them. The pollutants may impact the flowing river or stream directly, but often times are carried downstream to a lake. Excess phosphorus is the trigger for large algae blooms.

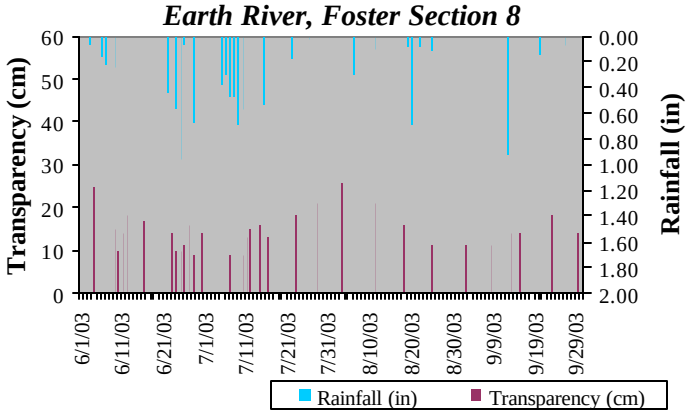
Rainfall's Effect on Transparency…

Transparency will vary over the length of the monitoring season for a variety of reasons, but often times this change is the result of precipitation. To get a better understanding of this relationship, transparency readings must be looked at together with rainfall amounts. Often when this data is looked at together, a decline in transparency after a rainfall event can be observed. Graphs 1,2, and 3 help to show this relationship between precipitation and transparency. When a peak in rainfall is observed, a fall is transparency is often also observed. This appears truer during the spring of the year until mid summer. Rainfall tends to produce more runoff during this time because there is less ground cover (crops, grass). During later summer and into fall, there tends to be more ground cover and crop canopy that slows and filters rainfall, producing less rapid runoff and therefore less noticeable transparency changes. Although generalizations can be made, site specific conditions also largely contribute to transparency tube readings

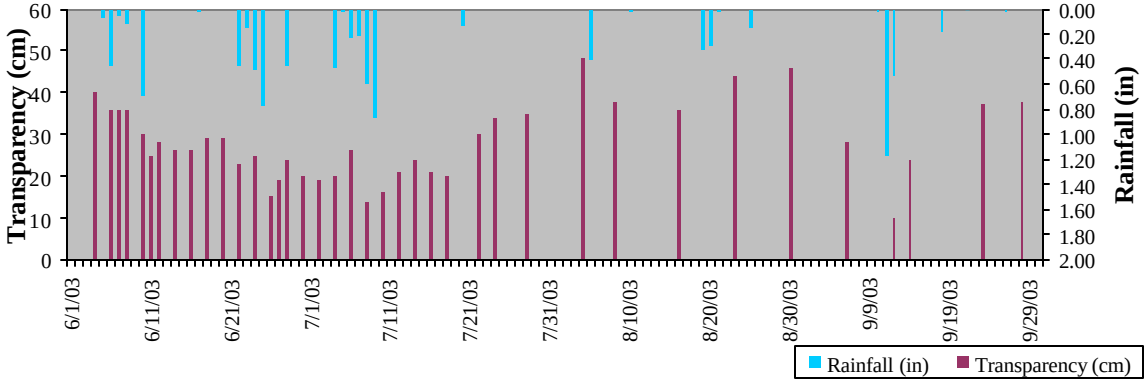
Graph 1. CSMP Data - County Ditch 3, Lura Section 4



Graph 2. CSMP Data - East Branch Blue Earth River, Foster Section 8



Graph 3. CSMP Data - Blue Earth River, Blue Earth Section 7



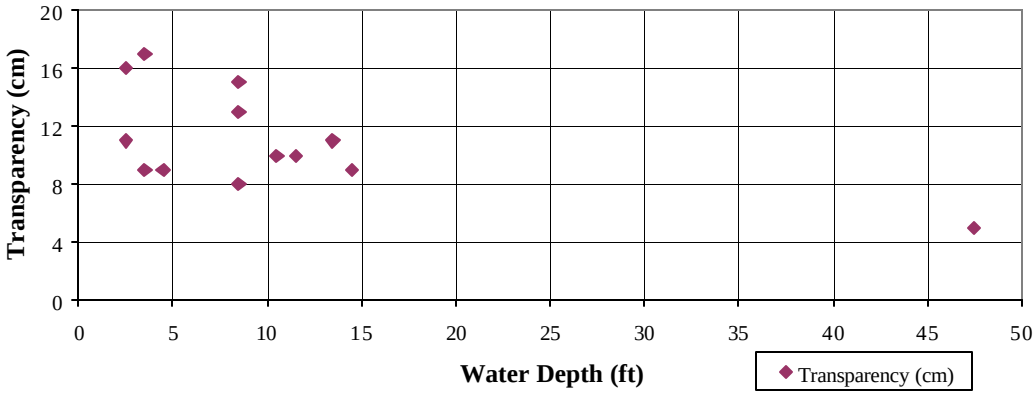
Transparency and Stream Depth…

Sites may also show a correlation between transparency and stream depth. First of all an increase in water level is normally the result of rainfall. In an area where erosion is likely there will be a drop in transparency. In areas

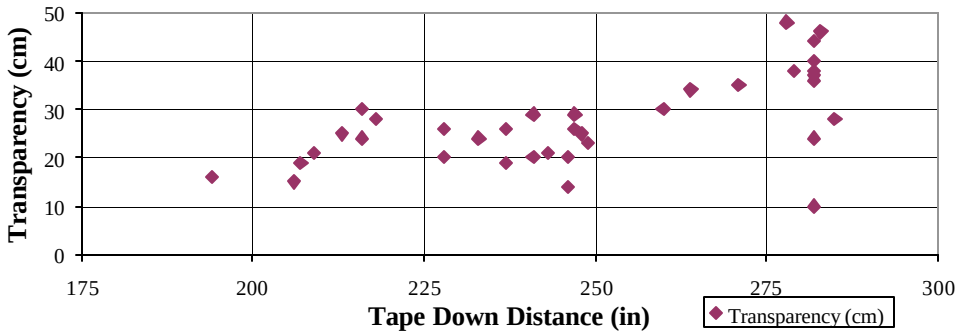
where erosion is not likely, the rainwater that enters the stream could actually dilute the pollutants and cause transparency to improve. However, local relationships can be complicated and may take observation over several years to understand the data at any one site.

In Graph 4 below, transparency was plotted against stream depth. If you look closely, you can see that at this site, the transparency reading decreases as water rises.

Graph 4. Transparency vs Stream Depth - Cobb River, Dunbar Section 3



Graph 5. Transparency vs Stream Stage - Blue Earth River, Section 7



Graph 5 compares transparency to the stream stage using the tape down distance. Note that a smaller number reflects a higher stream stage, and a larger number a lower stage. In this graph you can see the same comparison made as Graph 4. At the higher stream stage, you can see a lower transparency.

Looking Ahead…

Once again, we would like to thank all of the Faribault County Citizen Stream Monitors. We look forward to many more years of interesting river watching with you. We hope that you will once again choose to be monitor and begin to make comparisons of your stream from year to year, and see relationships begin to develop between your streams transparency and precipitation and depth. As more monitoring is done, more conclusions can start to be made about the condition of your stream.

If you know of anyone who might be interested in participating in the Citizen Stream Monitoring Program or if you have any questions yourself, contact the Faribault County Soil and Water Conservation District at (507) 526-2388.