Citizen Stream Monitoring Program

Healthier Streams — One Volunteer at a Time

2005 Individual Site Report

Introduction

The Minnesota Pollution Control Agency's (MPCA) Citizen Stream-Monitoring Program (CSMP) began in 1998 to give Minnesotans the opportunity to get involved in a simple, meaningful stream-monitoring program. Volunteers visit a nearby stream weekly from April to September to measure stream water clarity with a Transparency Tube, check water level or stage, and rank the stream's Appearance and Recreational Suitability. In addition to weekly stream measurements, daily rainfall is recorded so volunteers know when to track transparency in response to rainfall runoff. A total of 450 volunteers monitored 715 stream sites across the state during 2005.

This report summarizes CSMP data collected during 2005. It differs from past reports by providing an in-depth look at results for a specific site. A map of the site of interest is found on page 2. Page 3 contains a table summarizing this year's data, and a chart that shows transparency and rainfall across the entire monitoring season. On the back cover you will find an interpretive guide to understanding what the data tell us about your stream. The statewide annual report will not be mailed this year, but is available on the MPCA website at:
http://www.pca.state.mn.us/water/csmp-reports.html

To view all available data from your site, go to:

http://www.pca.state.mn.us/water/csmp-search.cfm

A "Station Search" menu on this web page allows you to quickly and easily access all the data available from your site. A downloadable file containing all data is also available.

How CSMP Data Are Used

Every two years the MPCA is required to report to the Environmental Protection Agency (EPA) on the condition of Minnesota's lakes and streams.

The report sent to the EPA includes turbidity measurements – an estimate of the 'murkiness' of water – that are compared to Minnesota's water quality standards. If a certain number of turbidity measurements exceed the water quality standard, the stream is listed as impaired and a plan for addressing the impairment is pursued. The state uses transparency tube data collected by citizens to help determine where streams and rivers have turbidity impairments. Basically, when stream turbidity is high, transparency is low. By establishing a scientific link between the two measures, transparency can be used as a surrogate for turbidity, allowing more streams to be assessed using citizen help.

Measuring stream water clarity with a transparency tube

Both the summary table and chart in this CSMP report show how data from your site compare to the state turbidity standard. For most streams and rivers in Minnesota, a transparency tube reading less than 20 centimeters indicates a violation of the turbidity standard. Please note: this does NOT apply to designated trout streams, where a scientific link between transparency and turbidity has not yet been well established.

Thank you for collecting water-quality data during 2005. The MPCA appreciates your commitment to stream monitoring and protection. If you have questions or comments on this report, please contact Laurie Sovell or Pam Anderson at 1-800-657-3864 (Greater MN) or 651-296-6300 (Twin Cities Metro Area), or by email at laurie.sovell@pca.state.mn.us or pam.anderson@pca.state.mn.us

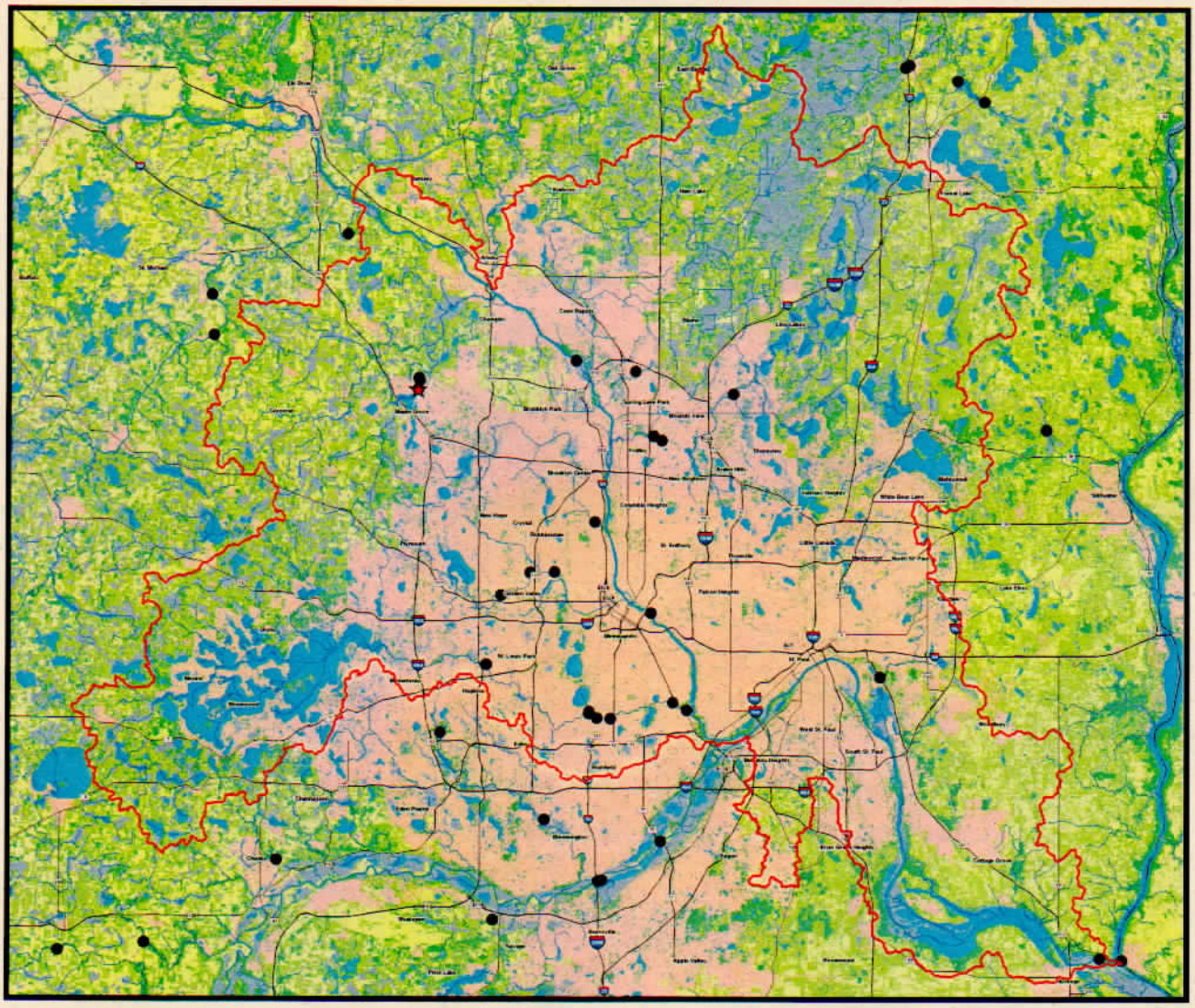
Minnesota Pollution Control Agency

Volunteer: George Schneider

Stream Name: Elm Creek @ dock S of CSAH 30 in Maple Grove

Site: CSMP0827 **County:** Hennepin **Watershed Code:** 07010206

Watershed Name: Mississippi River (Twin Cities)



Land Use Types	Land Use Percentages for This Watershed
Open Water	9
Urban	42
Forest	10
Pasture	16
Agriculture	10
Wetlands	12

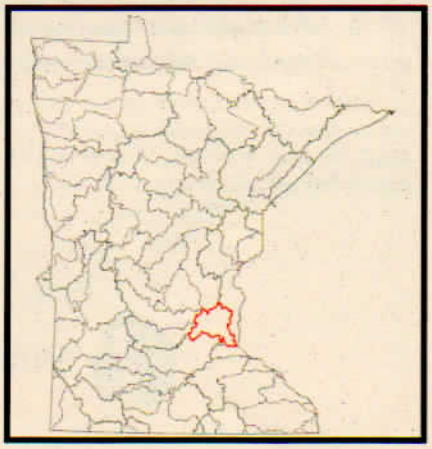
Your CSMP Site

Other CSMP Sites

Watershed Boundary

Road

Water



2005 Transparency Tube and Rainfall Data Summary

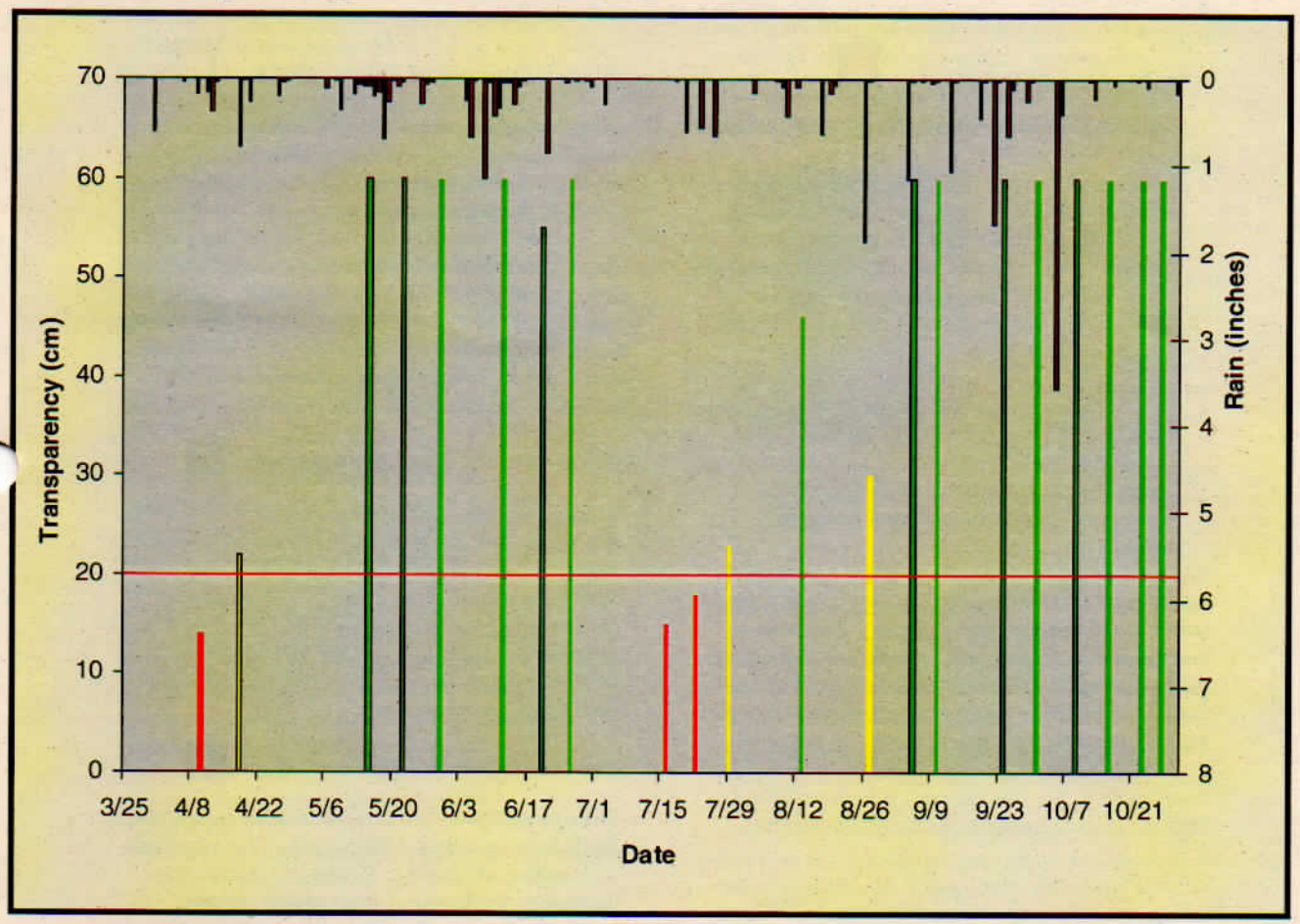
Monitoring Period: 3/25/2005 **To:** 10/30/2005

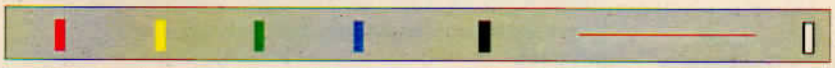
Years Monitored: 2

Transparency Tube (centimeters):	Avg	Min	Max	Count	Count<20cm
	48	14	60	21	3

Rain Total (inches): 26 **Rain Count:** 220

2005 Transparency and Rainfall Data





T-tube readings below red line = violation of turbidity standard

Bars with black border indicate transparency readings were taken in response to a rain event.

2006 Turbidity Assessment Status:

Data do not meet assessment criteria.

Additional Impairments:

	Year First Listed:
Oxygen, Dissolved	2004

George Schneider
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Maple Grove MN 55369

Guide to Interpreting Transparency Readings

Tracking water transparency is like monitoring your blood pressure - it can serve as a basic indicator of stream health. In general, low transparency reflects excessive sediment or other suspended material (e.g. algae) in the water. The following categories provide a benchmark for comparison to your site's transparency readings. These categories relate primarily to materials suspended in the water. *Clear* water does not necessarily equate with *clean* water, but in many cases clarity is an indicator that overall stream condition is good. Water quality can also be affected by pollutants such as mercury or fecal coliform bacteria, which can be found in clear water. Changes to the physical structure of streams such as stream bank stability and fish habitat can also degrade overall stream quality.

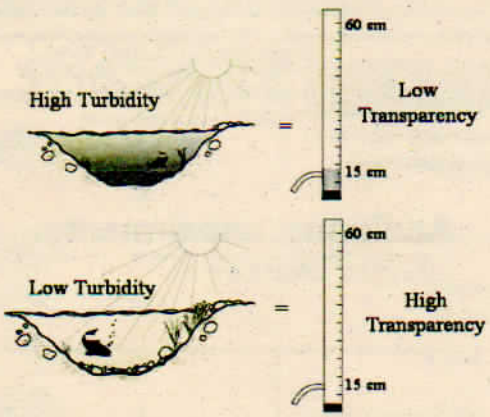
< 20 cm - Poor Transparency

Transparencies in this range are most likely to occur with:

a. Rainfall or snow-melt generated surface runoff from streets and other "hard" surfaces; urban and agricultural land experiencing soil erosion. Depending on the size of the stream or river, such runoff may impact downstream transparency for hours, or even days, after rain storms or snow-melt.

b. Turbulent or high-flow conditions that erode banks or "stir up" the bottom. Because these conditions are related to snow-melt or rain storms, it can be difficult to separate these "internal effects" from external watershed runoff.

Transparency measurements in this range exceed the State of Minnesota water quality standard for turbidity (murkiness or cloudiness). Turbidity is measured with an electronic instrument that detects the transmission of light through water. If a certain number of turbidity measurements exceed the water quality standard, the stream is listed as impaired. Because transparency values reliably predict turbidity (e.g. low transparency = high turbidity), they are used to assess for turbidity impairment.



20 cm - 40 cm – Fair Transparency

Streams, ditches, and rivers with relatively good overall water quality could have transparencies in this range during high flows that occur with spring runoff or significant rainstorms.

Under lower flow conditions in small streams and rivers, transparencies in this range may indicate water quality problems. During lower flows in large rivers, transparencies in this range may reflect high levels of free-floating algae in the water, or fine sediments that remain in suspension for a long time.

41 cm – 60 cm - Good Transparency

Streams, ditches, and rivers with transparencies in this range most of the time - even during spring runoff and after significant rainstorms - likely have very good overall water quality. Streams with consistently good transparency may have significant groundwater influence (i.e. SE MN trout streams), or flow through watersheds dominated by year round grass or forest cover.

>60 cm - Excellent Transparency

Streams and rivers with transparencies in this range likely have excellent water quality. It is important to continue monitoring. Continued monitoring documents background water clarity, in case transparency decreases after changes to condition of the watershed, or the introduction of a new pollutant.