

The Citizen Monitor

Hawk Creek Watershed Project * 500 East DePue Avenue * Olivia MN * 56277 * (320) 523-3666

Monitoring 2011

Special Points of Interest

- * Thanks to Citizen Monitors
- * News around the Watershed
- * Details on the 2011 Data
- * Rainfall '03-'11
- * New Secchi Tubes
- * Monitoring Results '04-'11
- * T-tube Trends '05-'11



Hawk Creek Citizen Stream Monitoring Program

Well, the 2011 monitoring season is complete! Please note that if in the past you did either transparency tube or rain gauge and are interested in doing both, let me know. Also if you have any equipment (rain gauges or t-tubes, even if they are broken) that you are not using anymore, please let me know so that I can fix it, get you new equipment, or get it back to the office for others to use.

If you do not want to participate in the program anymore, please let the office know so that I can inform MPCA or the Climatological Network that you are no longer participating.

The Citizen Monitor is a publication that will be printed after each monitoring season. This edition of *The Citizen Monitor* has data from the 2011 sampling year.

Transparency and rainfall data that you collect throughout the watershed is important and strengthens the Hawk Creek Watershed Project's monitoring efforts. Monitoring results are also helpful in obtaining state and federal grants to help landowners connect and prevent pollution problems.

Transparency tube data collected by citizens is shared with the Minnesota Pollution Control Agency (MPCA). They use the information to write the annual Report on the Water Quality of Minnesota Streams, and assess the health of the streams through the TMDL process.

Rainfall data is used by the Minnesota Climatological Network to find rainfall trends throughout the state.

I am always looking for more citizens to take transparency readings or report rainfall. If you know anyone who might be interested in joining the Network, please call me at (320) 523-3673.

"When the well is dry, we learn the worth of water"

~Benjamin Franklin

Inside this issue:

Thanks to this years Citizen Monitors	1
News from around the Watershed	2
Details on the 2011 Data	2
Rainfall '03-'11	3
New Equipment-Secchi tubes	3
Monitoring Results '04-'11	4
Transparency Trends '05-'11	5



Thanks To This Years Citizen Monitors

Your participation is what makes the Citizen Monitor Network a success.

I would like to thank the following citizen monitors for their hard work this year: Jackie Ast, Tom & Roxanne Breitreutz, Terri Dinesen, Randy Feifareck, Brad Froland, Ron Haraldson, Ron Hanson, Marge Hegna, Virginia Homme, Donald Korstad, Gene Larson, Harriet Link, Kim Malmquist, Randy Nelson, Scott Refsland, William Schafer, Rick Schmidt, Norb & Cindy Serbus, John Sietsema, Perry Slagter, Steve Smith, and Lowell White.

News from Around the Watershed



Hawk Creek invited all its citizen monitors and project participants to the Appreciation Picnic. It was held September 9th, 2011 at the Maynard Lions Park. Hawk Creek staff has done this in the past to just support and recognize those individuals that give their time and energy towards the project by volunteering! Thanks again to those of you that have volunteered your time and energy to make the Hawk Creek Watershed Project what it is today!



Construction season has been slow all year. Hawk Creek has been cost-sharing with all three counties on rip-rapping stream and ditch banks. High and violent water this spring caused some of the banks to slough again, but not like in 2010. Hawk and Beaver Creeks did see some more bank erosion in April during the spring runoff and high flows. This does not help the turbidity levels of the watershed. The Hawk Creek Watershed Project has just obtained more grant funds for Best Management Practices (BMPs) throughout the watershed. If you are considering a BMP on your farm or ag land, please contact your local Soil and Water Conservation District (SWCD), Natural Resources Conservation Service (NRCS) or the Hawk Creek Watershed Project.

We are more than willing to come out and visit with you on your farm about your idea and find the right type of practice for your erosion issue!

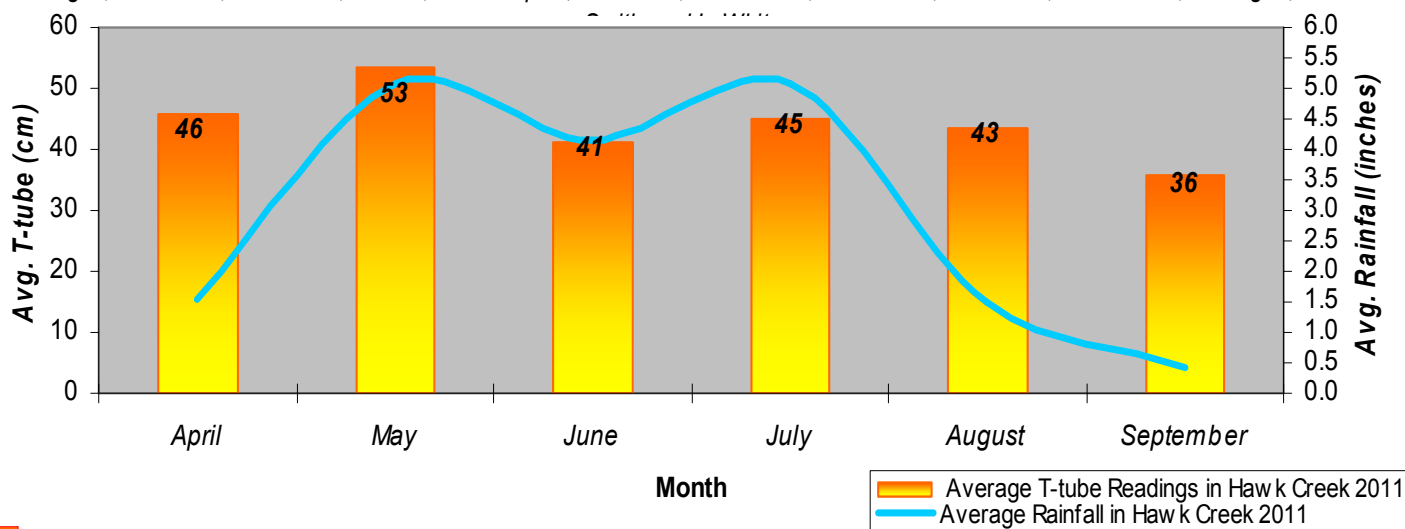


Details on the 2011 Data

The Hawk Creek Watershed Project appreciates all the data collected by the Citizen Monitoring Network. Below is a brief synopsis of the 2011 monitoring season. The chart below takes in account all of the streams that are monitored and the average of the transparency, along with the rainfall averages for the year. The year 2011 started off being a normal spring with slow snowmelt runoff, but with the higher winter flows from late season rains in 2010. Rivers were flirting with high flows at freeze up. High then normal winter flows and lots of snow for spring runoff lead to higher water levels this spring, which lead to stream bank/streambed erosion problems on many of the streams in the watershed. From the results that you all collected; you can see that for most of the season each of the streams had relatively fair clarity even with low or high rainfall amounts. Remember <10cm is bad clarity, 10-40 cm fair, and 40->60 good clarity. You can see that the average readings were between 36-53 cm, which is fair to good clarity.

2011 Average Monthly Total Rainfall and Average Transparency Tube Readings for the Hawk Creek Watershed Project

Participating Citizens: J. Ast, T. Breitkreutz, T. Dinesen, R. Feifarek, B. Froland, R. Hanson, R. Haraldson, Hawk Creek CWP, M. Hegna, V. Homme, D. Korstad, H. Link, K. Malmquist, R. Nelson, S. Refsland, W. Schafer, N. Serbus, J. Sietsema, P. Slagter, S.





Rainfall '03-11

Thanks to those of you who have been collecting rainfall for many years now, this helps with trends and weather patterns for the watershed and

the State of Minnesota.

As you can see in the chart below, we have the amounts from 2003-2011. It looks like 2004, 2005 and 2010 were the wettest years. This year was looking like it was going to be a repeat of 2010, but then a late season drought stopped our worries for a wet harvest and put us into a very dry pattern. Lets hope that we don't keep in this drought pattern for very long. Look at the transparency averages (on the page 3) for the past years, does the amount of rain affect transparency? Is there any trends with rainfall, could 2006-2009 years be thought of as drought years? If you remove the October rainfall amount for the 2011 year, we are looking at between 18 to 21 inches for the total year. The timeliness of the rainfall and amounts needs to sustain the agricultural crops are important to this region. There are many questions that could be answered by knowing how the rainfall affects transparency or how much rain is recorded in a watershed.

Remember your data collection is important to the health of your rivers and lakes, and the watershed that you live in!

Total Rainfall from March to October of 2003-2011									
	2003	2004	2005	2006	2007	2008	2009	2010	2011
Smith	19.34	29.75	29.53	18.65	24.26	15.87	20.51	31.08	21.75
Nelson	15.99	22.31	20.95	12.13	14.81	17.23	20.20	26.95	20.12
Froland			20.41	15.96	14.56	16.05	13.01	30.81	18.23
Slagter							18.36	30.74	19.18
Ast	13.18	23.60	21.83	14.38	20.73	16.12	15.10	31.30	14.35
Link	16.41	26.84	24.08	17.54	17.40	18.83	21.53	29.51	19.49
Sietsema	10.20	15.76	18.55	10.75	7.51	10.60	14.29	19.13	6.34
Feifareck	16.66	18.70	20.26	14.62	11.69		17.75	25.39	19.84
Hanson	17.58	24.42	21.36	15.51	17.79	15.25	18.93	31.29	16.72
Bratsch	15.57	23.30	22.48	18.95	21.35		20.55		
Breitkreutz	16.21	24.30	25.98	18.28	25.72	23.08	23.19	29.70	19.42
Lewison	15.51	19.53	25.81	17.09	14.57	12.82	14.19		
White			23.41	19.02	15.31	20.30	21.07	34.72	21.14
Homme							21.17	37.70	18.22
Hegna	18.81		20.88	15.00	17.81	18.66	18.90	28.81	19.39
Malmquist		20.78	22.25	16.83	18.00	15.27	17.96	34.05	19.38
Schafer			23.54	18.27	18.61	15.02	21.33	27.05	20.24
Hawk Creek				17.67	13.07		23.23	20.29	19.45
Refsland							17.96	27.50	16.23
Serbus									1.99



NEW Equipment-Secchi Tubes

The CSMP is switching to a new type of sampling gear called a "Secchi tube" in the spring of 2012. Below is a blurb from the CSMP Coordinator Laurie Sovell.

"As part of the 2012 datasheet mailing, we will also be replacing all transparency tubes (60 and 100 cm) with the new 100 cm Secchi tube.

Complete instructions will be included with your new Secchi tube."

The tubes will look just like the old ones, but instead of draining the water out of the spout, you will drop a little secchi disk in the tube and raise it up until you can see the black and white disk (kind of like taking a lake transparency reading). So...it looks like we might be having a training session in April or May on the new tubes and collection of the old ones. More details will be announced once I find out more about this change over! Anyone that has done the transparency in the past will receive a new tube.

If you would like to start now...let me know so I can get the correct about of tubes ordered!





Monitoring Results '04-'11

Below is a chart of the mean transparency readings by each t-tube reader, along with rainfall from each rainfall monitor.

The chart shows all the average transparency results from 2004 to 2010 (in a different colored number) along with the 2011 average transparency in black. As you can see there are some streams that show no definite decrease or increase in the water clarity from year to year (i.e. T. Breitzkreutz on Timms Creek and R. Haraldson on Long Lake Outlet).

But if you look at the data from W. Schafer (West Fork Beaver Creek), you can see a steady increase in the water clarity from 2005-2010, and in 2011 a drop in the clarity.

So what's going on in that sub-watershed? Were there improvements made in the sub-watershed that helped for a while, was there a ditch clean out, beaver activity mudding up the stream or just a lack of water "flushing" out that stream?

Hawk Creek also low clarity this year, its possible that the high water and large amounts of rain never allowed the stream to "clear up." As of October, the Hawk Creek Outlet; the clarity of up to nearly 50 cm. *So does more water help or hinder the clarity, I guess it depends on the intensity and length of the high water and rainfall events.*

What does the water look like during a rain event, low flow, and normal conditions...what does the stream look like above the site, could there be a problem below the site? Remember the more readings that you take the better we get a hand on if there are potential problems in this watershed or not.

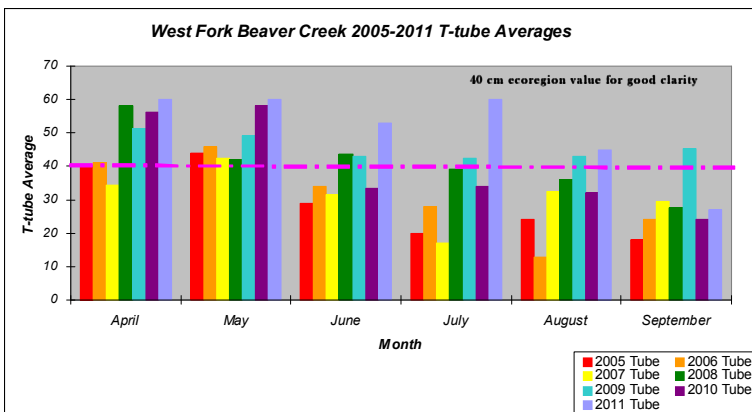
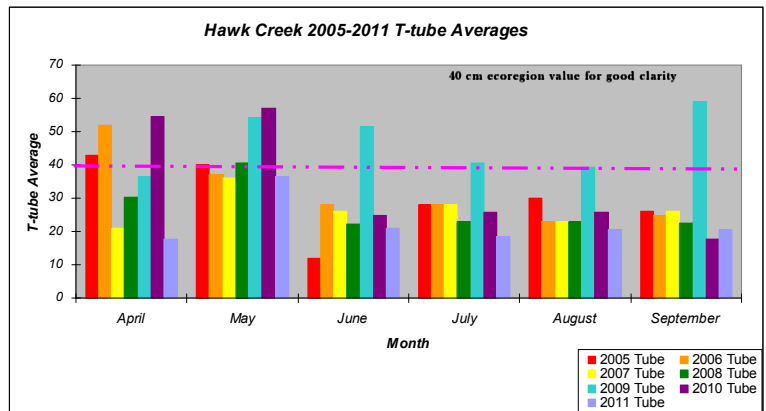
With your t-tube and rainfall readings, we have been able to get a better idea on what where we can put Best Management Practices (BMPs) for water quality improvements. **Keep up the Good Work!**

2011 CSMP Results																
Citizen Monitor	# of samples	2011 Mean cm								2011 Min cm	2011 Max cm	2011 N>60	2011 Total Rain Reported (inches)	Rain Days Reported	2011 Data Collection Season	CM # of Years
J. Ast	—	10	09	08	07	06	05	04	—	—	—	—	14.35	54	4/1/11-9/30/11	7
L. Bratsch	—	33	18	22	25	27	27	—	—	—	—	—	—	—	—	7
T. Breitzkreutz	16	54	53	>60	56	54	59	55	11	> 60	14	19.42	91	4/1/11-10/20/11	7	
T. Dinsler/V. Homme	11	20	20	42	27	27	32	26	16	5.5	30	—	—	—	—	3
R. Feifarek	—	—	—	—	—	—	—	—	—	—	—	19.84	44	4/1/11-9/30/11	9	
B. Froland	25	21	30	45	21	26	30	34	7	44	—	18.23	57	4/1/11-9/30/11	5	
R. Hanson	—	—	—	—	—	—	—	—	—	—	—	16.72	59	4/1/11-9/30/11	8	
R. Haraldson	6	60	60	57	—	—	—	—	>60	>60	6	—	—	5/1/11-10/20/11	3	
M. Hegna	—	—	—	—	—	—	—	—	—	—	—	19.39	60	4/1/11-10/20/11	7	
V. Homme	—	—	—	—	—	—	—	—	—	—	—	18.22	48	4/1/11-9/30/11	8	
D. Korstad	29	26	40	52	33	28	38	37	7	> 60	1	—	—	—	9	
G. & J. Lewison	—	28	20	22	19	14	17	—	—	—	—	—	—	—	5	
H. Link	—	—	—	—	—	—	—	—	—	—	—	19.49	66	4/1/11-9/30/11	9	
K. Malmquist	—	—	—	—	—	—	—	—	—	—	—	19.38	52	4/1/11-9/30/11	8	
R. Nelson	—	—	—	—	—	—	—	—	—	—	—	20.12	44	4/1/11-9/30/11	7	
S. Refsland	—	—	—	—	—	—	—	—	—	—	—	16.23	40	4/1/11-9/30/11	3	
W. Schafer	56	29	50	54	53	41	36	33	2	> 60	2	20.24	72	3/1/11-10/20/11	5	
R. Schmidt	—	36	35	—	—	—	—	—	—	—	—	—	—	—	4	
J. Sietsema	—	—	—	—	—	—	—	—	—	—	—	6.34	54	3/1/11-9/30/11	7	
P. Slagter	18	48	56	57	47	59	—	—	10	60	—	19.18	51	4/1/11-9/30/11	5	
S. Smith	—	—	—	—	—	—	—	—	—	—	—	21.75	62	4/1/11-9/30/11	9	
L. White	—	—	—	—	—	—	—	—	—	—	—	21.14	44	3/1/11-9/30/11	5	
N. Serbus	—	—	—	—	—	—	—	—	—	—	—	1.99	11	9/1/11-10/20/11	1	
G. Larson	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	
Hawk Creek	—	—	—	—	—	—	—	—	—	—	—	19.45	66	4/1/11-9/30/11	3	
<i>N = Number of transparency observations</i> <i>Mean = Average of transparency readings (cm)</i> <i>Min = Minimum transparency readings</i> <i>Max = Maximum transparency readings</i> <i>N>60 = Number of transparency readings greater then 60 cm</i>											<i>Avg. App. = Average Appearance rating</i> <i>Avg. Rec. = Average Recreational Suitability rating</i> <i>Total Rain Reported = Inches of rain fallen at site during observation</i> <i>Rain Days Reported = Total number of days with recorded rain event</i> <i>CM # Years = Number of years serving as a monitor</i>					

Transparency Trends 2005-2011

Hawk Creek trends show transparency was great in 2009, but not so much for the rest of the years. In 2010-2011, t-tube readings were low. Why? Rain events during the spring and summer can be intense, creating turbid water and high flows; which eat away the banks and stream beds. This year we had high flows until August, which created turbid water for much of the year. Also, warm water temperatures creates algal growth which decreases the water clarity. The more readings that are taken the better idea we have on the clarity of the water and the state of the river.

Remember this chart is the averaged transparency readings from the monitors on Hawk Creek.



West Fork Beaver Creek trends show transparency was good for many of the years. You can see starting in the summer months the water clarity drops, this could be because of the lack for rainfall, or wildlife stirring up the bottom.

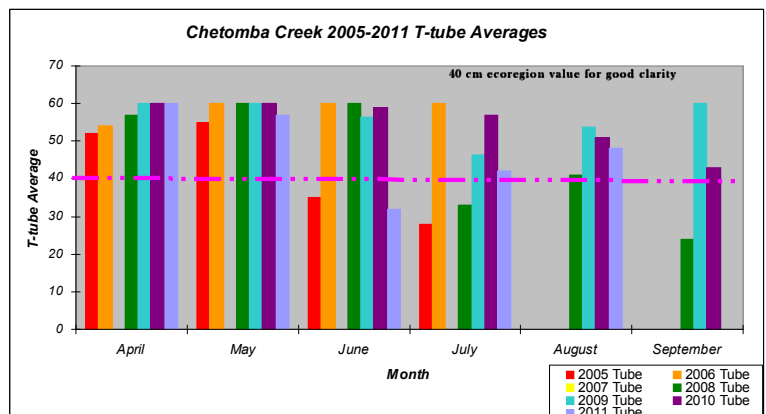
William Schafer mentioned that the water clarity wasn't as good this year as it has been in the past...but looking at the graph it's fairly close to the 2009 season.

Many factors could contribute to the lower t-tube readings, ditch clean outs, beaver activities, etc.

Remember this chart is the averaged transparency readings from the monitors on West Fork Beaver Creek and its tributaries.

Chetomba Creek trends show transparency has been great from 2005 to 2011, above the 40 cm line. So why are the trends here higher than Hawk. Chetomba is very vegetated along its ditch banks, helping slow down some of the water from running off the adjacent landscape. Does that mean that it's clear year round...No! Chetomba Creek during large intense rain events can had the same water quality and clarity as the Hawk Creek. It all depends on where and when the samples are taken

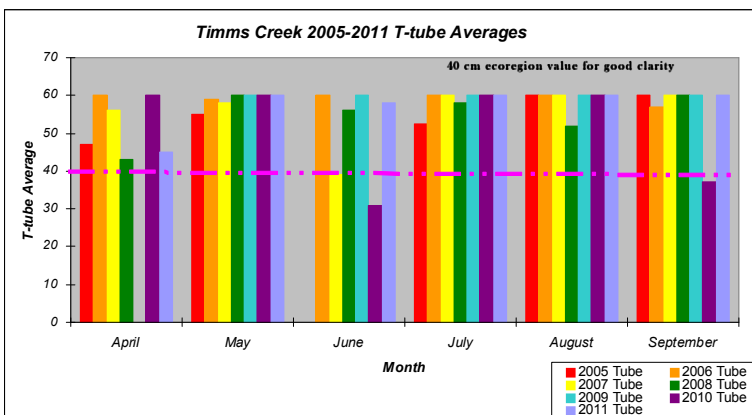
Remember this chart is the averaged transparency readings from the monitors on Chetomba Creek and its tributaries.



Timms Creek trends show transparency has been great from 2005 to 2011, well above the 40 cm line. So why are the trends here higher than Hawk Creek or Beaver Creek. Timms is very vegetated along its ditch banks, helping slow down some of the water from running off the adjacent landscape and is also a smaller stream and has cold water. Colder water helps drop sediment out of the stream. Does that mean that it's clear year round...No!

Timms Creek during large intense rain events can had the same water quality and clarity as the Hawk Creek. Here is a spot where a 100cm t-tube would be helpful!

Remember this chart is the averaged transparency readings from the monitor on Timms Creek.





Prairie Country RC&D
Hawk Creek Watershed Project
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DID YOU KNOW?

Did you know that burning leaves on your shoreline contributes to the phosphorus levels in your lakes and streams? This in turn contributes to the growth of algae and unwanted weeds in our watercourses. Raking and blowing leaves or grass clippings in the water will also contribute to this problem.

Do what is right, bag leaves and grass clippings and take them to the brush site!



FUNDED IN PART THROUGH A GRANT FROM THE MPCA

