



The Citizen Monitor

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

Monitoring 2011

Special Points of Interest

- 👉 Special Thanks
- 👉 News from around the Watershed
- 👉 Hawk Creeks Lake Sampling 2010-2011
- 👉 Citizen Secchi Results-2011



Well, the 2011 monitoring season is complete!

I hope that everyone enjoyed getting out on the lakes to take secchi disk readings. If you have any problems getting to your sampling sites or if you are not sure if you are at the right site, call our office and I can help you out. Also, some of you have had problems getting to your site by canoe or boat, remember if it's too windy or wavy out on the lake, do not risk yourself for readings. I want everyone to be safe when on the water, ***remember to always wear your life jackets.***

If you do not want to participate in the program anymore, please let our office know so that I can inform MPCA that you are no longer participating in the lakes program. Or if you gave us access onto the lakes from your property and would be willing or interested in participating, let me know!

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 along with other interesting information on lakes.

I are currently looking for more citizens to take secchi disk readings on the lakes within the watershed; such as Skataas, Swan, Ringo, Willmar, East Twin, West Twin, St. Johns, and West Solomon. If you know anyone who might be interested in joining the Network, please call me at (320) 523-3673.

"We do not inherit the earth from our ancestors, we borrow it from our children."

~Native American Proverb

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Special Thanks To Citizen Monitors & Private Accesses

Your participation is what makes the Citizen Monitor Network a success. I would like to thank all of you for the hard work this year:

Barb & Lowell Tornquist, Bob & Doris Ast, and Ron Haraldson.

Also to Vonn Zylstra and family on West Twin Lake, William Cunningham on East Twin Lake, Richard Falk and Doug Elfstrum and family on West Solomon Lake, and Mel Schwartz on St. Johns Lake for allowing us access to the lakes.

News from Around the Watershed



Hawk Creek invited all its citizen monitors and project participants to the Appreciation Picnic. It was held September 9th, 2010 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!



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, ag land, or shoreline, 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 or property, about your idea and find the right type of practice for your erosion or water quality issue!*



The Long/Ringo Lakes Total Maximum Daily Load (TMDL) Assessment Report was completed and approved in December 2010. An Implementation Plan must be completed with the Best Management Practices (BMPs) that will be implemented within the watershed. As of right now, the Implementation Plan is in the draft phase and will be completed before June 2012. After the completed plan is finished and approved, Hawk Creek will apply for grant funds for that specific localized watershed for projects that are more specialized for the Long and Ringo Lakes excessive phosphorus impairment. *There is currently watershed-wide funding for BMPs for the entire Hawk Creek Watershed.*



Hawk Creek is planning its Annual Information and Appreciation Meeting for early 2012. Look for more information and details to follow in the months to come.

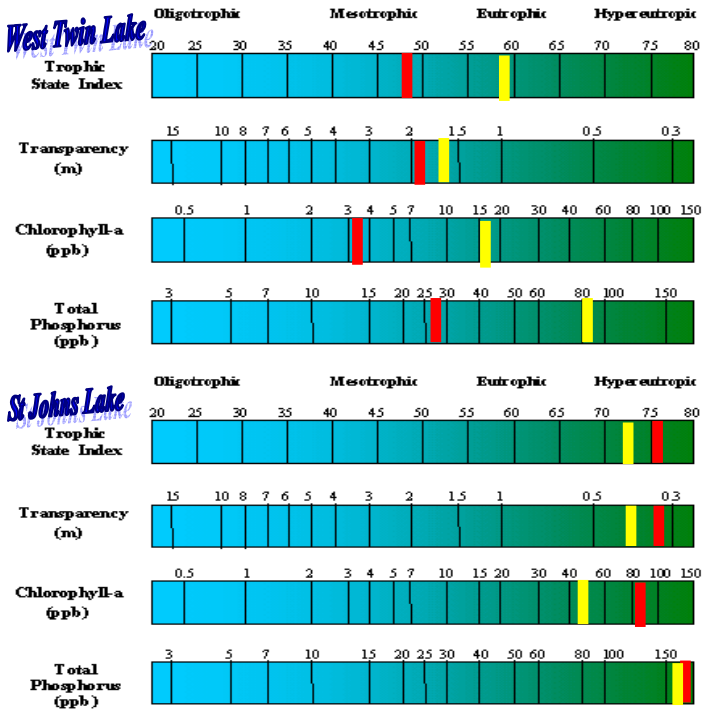
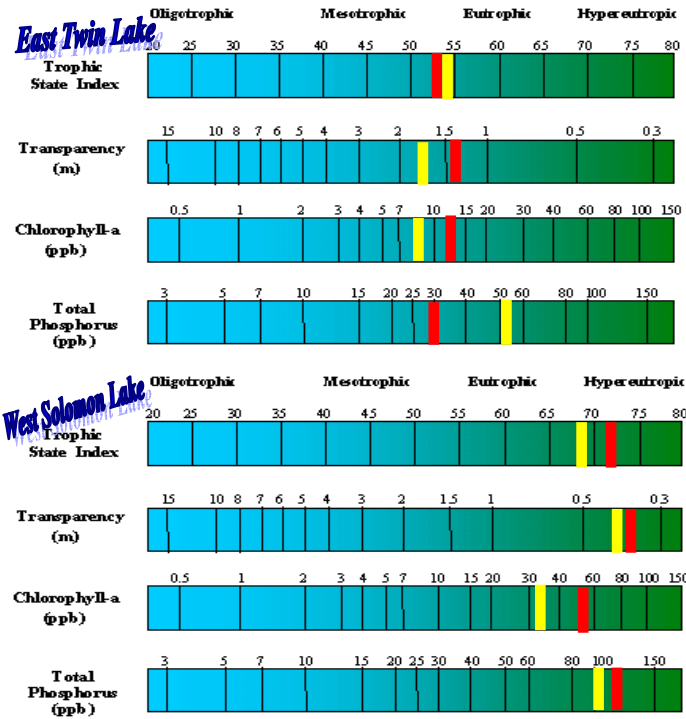
Hawk Creek Lake Sampling 2011

This year, Hawk Creek concluded two years of sampling on East and West Twin, West Solomon, and St. Johns lakes. The Minnesota Pollution Control Agency asked Hawk Creek to sample the lakes for total phosphorus (TP), Secchi disk transparency and chlorophyll-a. These three simple tests are used to create a Trophic Status Index (TSI) score for each lake. Based on the score a lake can be listed as “impaired.” Below are the scores and the definitions a lake can receive. Many of the lakes in the Hawk Creek Watershed are in the 50-80 range, or eutrophic to hypereutrophic

TSI (Carlson 1977)	TROPHIC STATUS INDEX & WATER QUALITY (for additional information, go to: MPCAs Citizens Monitoring Handbook)
< 30	Oligotrophic; clear water; high DO throughout the year in the entire hypolimnion
30-40	Oligotrophic; clear water; possible periods of limited hypolimnetic anoxia (DO =0)
40-50	Moderately clear water; increasing chance of hypolimnetic anoxia in summer; fully supportive of all swimmable/aesthetic uses
50-60	Mildly eutrophic; decreased transparency; anoxic hypolimnion; macrophyte problems; warm-water fisheries only; supportive of all swimmable/aesthetic uses but "threatened"
60-70	Blue-green algae dominance; scums possible; extensive macrophyte problems
70-80	Heavy algal blooms possible throughout summer; dense macrophyte beds; hypereutrophic
> 80	Algal scums; summer fish kills; few macrophytes due to algal shading; rough fish dominance

Lake Sampling TSI Scores for 2010-2011

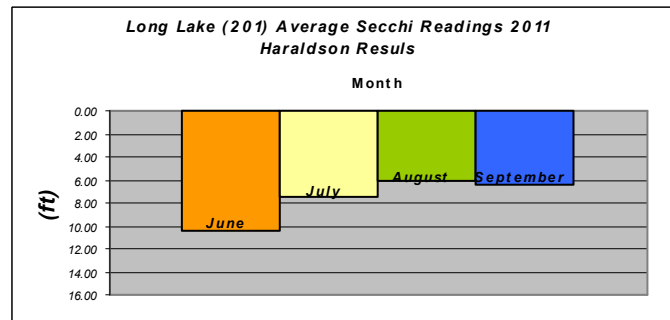
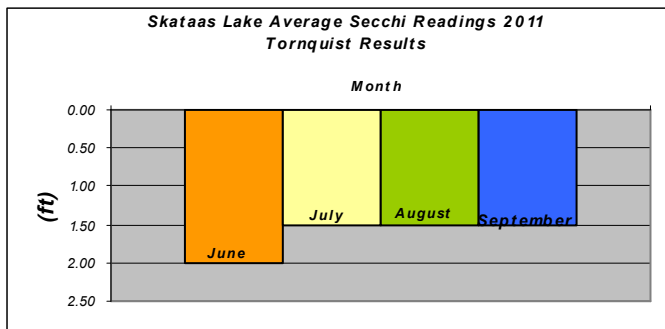
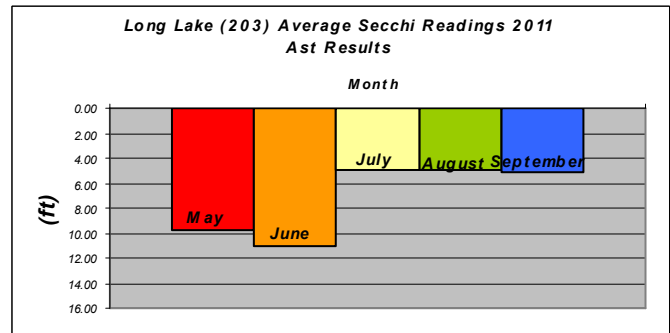
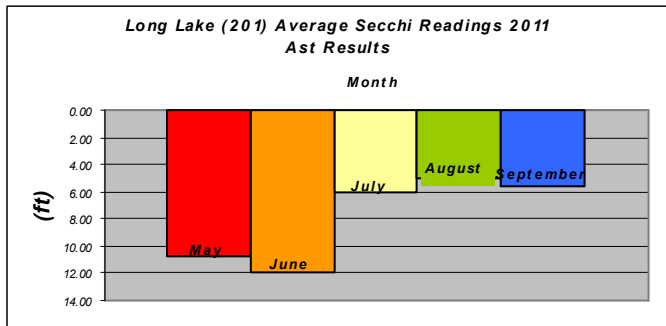
Below are the TSI results for the two years of sampling. The red line is the 2010 TSI scores and the 2011 TSI scores are in yellow. As you can see all the lakes are fairly constant between the two years. One thing that we noticed sampling was that West Twin was better in 2010, then in 2011. This could be because of heavy vegetation, or excess of water coming into that lake from East Twin. But both of these lakes have excellent secchi transparency and chlorophyll-a results. Many of the times the secchi readings would be close to the bottom! West Solomon and St. Johns are another story all together...unfortunately they are on the other end of the spectrum. Both of these lakes have low clarity, high phosphorus and slightly high chlorophyll-a readings. Much of the two years we saw greenish water with some algae in the water column. At the end of the season in 2011, West Solomon was experiencing a slight blue-green algae bloom from the warmer temperatures in the late season. St. Johns lake had the highest water levels in years, and due to the high water, many of the residents experienced some shoreline erosion. The wave action taking out sediment will increase phosphorus levels, since phosphorus bonds to soil particles, phosphorus results can be high. Another issue on these two lakes is fish activity, large carp can be seen feeding in the lakes during the spring and summer months. Carp and rough fish such as bullheads like to stir up the bottom sediment of lakes and loose up any aquatic vegetation that could use up excess nutrients in the lake. Below is a chart of the ecoregion typical ranges (highlighted blue would be East and West Twin lakes ecoregion, and highlighted yellow would be West Solomon and St. Johns lakes). As you can see based on the ecoregion typical values, all the lakes are close to the ranges that is suggested.



Ecoregion lake data summary				
Values are typical for surface water (0-2 m) in summer (June-September).				
PARAMETER	Northern Lakes and Forests	North Central Hardwood Forests	Western Corn Belt Plains	Northern Glaciated Plains
Total Phosphorus (µg/L)	14 - 17	23 - 50	65 - 150	130 - 250
Chlorophyll-mean (µg/L)	< 10	5 - 22	30 - 80	30 - 55
Secchi Disk (m)	2.4 - 4.6	1.5 - 3.2	0.5 - 1.0	0.3 - 1.0

Citizen Monitoring Secchi Disk Results 2011

Below are charts of the average Secchi disk readings for each of the sampled lakes or sites. Secchi readings for each citizen volunteer data were averaged for each of the summer months. As you can see there is a trend of low clarity during the summer months (warm weather), and better clarity early in the spring. Rainfall can also play into the clarity of lakes, as rain flushes the landscape of nutrients, which in turn can create algae. Also the time of day, cloudiness and wave action can change the depth of a Secchi reading. One thing to remember is to be consistent with the way that you take your readings, make sure your back is to the sun and do not wear polarized sunglasses. Remember to take good field notes, make sure to note if it was windy, wind speed estimate, appearance (color of the water), recreational suitability (swimmable, boating), and if there was any past rain events (within 1 week). Also note what type of birds (if any) were seen on the water.



2011 CLMP Results

Citizen Monitor	# of Secchi disk readings	2011 Mean (ft)	2011 Min (ft)	2011 Max (ft)	Data Collection Season	Average Appearance Ranking (1-5)	Average Recreational Ranking (1-5)	CM # of Years
		2010 2009 2008 Mean (ft)						
B. Ast (Long Lake 201)	13	8.00 8.07 6.71	2.00	16.00	5/3/11 to 9/28/11	3	3	3
B. Ast (Long Lake 203)	13	7.42 7.37 7.00	2.50	14.00	5/3/11 to 9/28/11	3	3	3
R. Haraldson (Long Lake 201)	6	7.92 6.10 4.67	4.50	11.50	6/4/11 to 9/28/11	3	3	3
L. Tornquist (Skataas Lake)	16	1.50 2.00 2.00 2.43	1.50	2.00	6/2/11 to 9/16/11	3	4	3
N = Number of transparency observations			Avg. App. = Average Appearance rating					
Mean = Average of transparency readings (cm)			Avg. Rec. = Average Recreational Suitability rating					
Min = Minimum transparency readings			CM # Years = Number of years serving as a monitor					
Max = Maximum transparency readings			Data Collection Season = Days readings were taken for season					

As you can see, for the past three years, all sites have been fairly consistent in the secchi readings. Lakes can be fairly constant with water quality and clarity, but if a chance does happen, it can be dramatic! No one reported any blue-green algae this year or much algae at all, which is a plus. Remember if you see blue-green water or experience "pea-green soup" take readings, but be careful not to let your kids or animals into the water as it is toxic!

Lets hope that the lake in the Hawk Creek watershed never look like this! →





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DID YOU KNOW?

Did you know that burning leaves on your shoreline contributes to the phosphorus levels in your lakes? This in turn contributes to the growth of algae and unwanted weeds in the lakes.

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

