

Thornapple River Water Quality Monitoring

For the last two years the CTRA has been participating as a member of the State of Michigan sponsored Cooperative Lakes Monitoring Program, or CLMP. Thru the CLMP, samples of Thornapple River water have been taken and evaluated to determine the health of our river. Because I have been unable to attend the last few river association meetings, I have been asked to submit an article that explains what we've been getting for our \$140 per year.

CLMP is actually a program within the Michigan Clean Water Corps, a network of volunteers (that's me) who collect and share water quality data. Over a period of many years, readings are taken and data is evaluated with the goal of determining how "productive" our river is. It's not the sort of program that will help you determine if the water is safe to drink, or how polluted our river is, but I don't think we need any state program to tell us that.

The program's objective is to determine a body of waters' productivity. A lake's ability to support plant and animal life defines its level of productivity, or trophic state (I'll get to that in a minute). And, unlike the type of productivity we're all used to being evaluated by at work, increasing the productivity of a lake is a bad thing. Increasing lake productivity beyond healthy levels can negatively impact water quality and result in problems such as excessive weed growth, algal blooms, and mucky bottom sediment (yuck!).

Lake productivity naturally increases over time, resulting from the gradual accumulation of nutrients and a slow filling in of the lake with sediment and silt. It also increases "culturally" by the input of nutrients and sediments from the surrounding land - most notably the airport and the golf course - that don't occur naturally. Our use of the river and other activities speed up the process also, by increasing nutrient, soil and organic matter input into the river.

Productivity is determined by taking various readings throughout the summer. From early May to the middle of September I measure the visibility of the river water once a week. Once a month, from May to September, I take a sample to test for Chlorophyll. And in the spring and late summer, separate samples are taken to measure the amount of phosphorus in the river. These measurements are then assigned a value on the Carlson Trophic State Index, which is.....a little more involved than I'd like to get in this article.

Using this data, and the Carlson Index, the trophic state of our river is determined. By the measures of transparency and phosphorus, our river falls into the trophic category of eutrophic, which is defined as highly productive,

generally shallow, turbid body of water, which supports “abundant” aquatic plant growth (bad). Using the chlorophyll data, we fall into the even more productive (trophic) category of hypereutrophic, or a body of water that supports extremely high productivity, such as nuisance algae and weed growth...but not many fish (or, Definitely don't drink the water).

With this in mind, has anyone else noticed more weeds growing in the river this year? Why is this happening? Can our continued participation in the CLMP program provide us with any answers? Well, the reason for the weed growth may be the result of the introduction of new species to our water. Or it may be due to the eutrophication of our river. It's too early in our involvement with CLMP to draw any conclusions. Many more years of sampling and testing will be required.

The primary objective of most associations that participate in the water monitoring program is to slow down the cultural eutrophication of a body of water. Because we are a river, not a lake, with so many sources of nutrient and sediment input, management of that input would go well beyond the authority and resources of our association. That doesn't mean we can't provide an opinion or have some say in how our river is treated and viewed by local communities and authorities. Continued monitoring and improved data will help give our voice more meaning and relevance, and help us understand what we can do to keep our river healthy.

Respectfully,
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