

Water Quality Monitoring

By Jan Garvey, ESLA Board Member

The Tip of the Mitt Watershed Council has coordinated and sponsored the Volunteer Lake Monitoring Program for more than 20 years. Volunteers monitor 35 lakes spread throughout northwestern Michigan. Monitoring water quality does not ensure clean water, but rather provides valuable information to help protect and improve water quality in the lakes.

Two ESLA volunteers, Dale Claudepierre and Dean Ginther have been monitoring our lakes for years. This year, John Spevacek, another ESLA volunteer, plans to get involved. Starting in May or early June, they start their weekly visits to the deepest part of the lake to perform water quality monitoring activities. After anchoring the boat, the monitor begins by measuring water clarity with a Secchi disc. The Secchi disc is a weighted disc, eight inches in diameter, which is painted black and white in alternating quarters. The monitor slowly lowers the Secchi disc over the shaded side of the boat and notes the depth where it disappears. The disc is lowered an additional two feet and then slowly raised until coming back into view. After noting the depth of reappearance, the average of the two depths is calculated and recorded. The deeper the Secchi disc depth, the clearer the water.

Every other week, the monitor collects a water sample that is used to measure chlorophyll-a concentrations. Measuring the amount of chlorophyll-a in a water sample provides a fairly accurate estimate of the amount of algae in the water. After determining the Secchi disc depth, the monitor collects the water sample in the same location. The water is filtered and the filtrate is stored in a freezer until the end of the season. All samples are then delivered to Tip of the Mitt and analyzed at the University of Michigan Bio-Station. A low level of chlorophyll-a indicates relatively low algae abundance and good to excellent water quality, while a high level of chlorophyll-a indicates dense algae growth and generally poor water quality.

Tip of the Mitt has suggested that we add Phosphorus sampling to our monitoring plan. Other lakes in the Elk River Chain of Lakes have been conducting this more frequent testing of phosphorus. We currently had been testing for phosphorus every three years as a part of the Comprehensive Water Quality Monitoring Program. Although we have not seen a poor trend in the phosphorus levels in our lakes, it is a good indicator for all lake water. Phosphorus is the nutrient most responsible for the pollution and premature aging of lakes in northern Michigan. The source of Phosphorus is mainly due to surface water run off and atmospheric deposition.

A comment from Dale Claudepierre:

" I have been the Water Quality Monitor for Lake Skegemog for the past 18 years and the trend that is most impressive is the water clarity. The data collected before my involvement indicated average seasonal clarity around 9 or 10 feet with a maximum of about 12 or 13 feet in June. By comparison the past two years average was around 16 feet and last June I could still see the Secchi disc when it hit the bottom in 24 feet of water! There are many factors involved in water clarity but the main contributor to the change has been the filtering effect of the invasive Zebra Mussels."

Data collected in the Volunteer Lake Monitoring Program has been entered into a comprehensive database and is available to view or download (in a Microsoft Excel spreadsheet). The easiest way to find this data is to use the search function on the Tip of the Mitt website, searching for Volunteer Lake Monitoring Program.