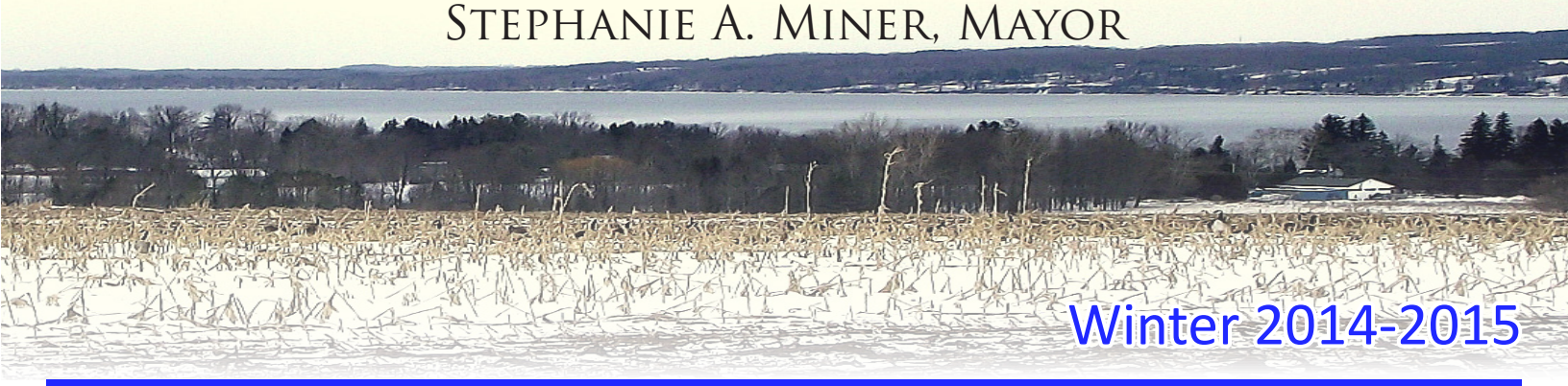
SKANEATELES WAVE REVIEWS

Brought to you by the City of Syracuse Department of Water

Stephanie A. Miner, Mayor



Winter 2014-2015

Lake Foam UPDATE: A Developing Problem? by Robert Werner, Skaneateles Lake Association

Over the last several years Skaneateles Lake has experienced unusually high levels of foam, which accumulates along the shore in bands several inches thick and extends several feet onto the shoreline. At the north end of the lake the accumulation of foam can be quite extensive on some days covering several acres of near shore water. Similar problems have been noted in other lakes in Central New York.

All lakes generate some foam. Disturbance at the surface of a lake from wind-induced white caps, motor boats, gas released by plant activity and a variety of other sources form bubbles which, when they accumulate, creates foam. Foam thus formed is often arranged over the surface of a lake in the form of "wind streaks"; multiple white bands of foam running parallel to the direction of the wind. They are formed as the result of Langmuir circulation where the movement of near surface water aggregates the bubbles along zones of convergence created by the Langmuir circulation pattern. All of this is quite normal. What isn't normal is the magnitude of the foam created.

The formation of bubbles is facilitated when the concentration of a group of chemical compounds, called surfactants, is high. An example of a surfactant is dishwashing detergent. If you pour pure water into a container some bubbles are formed as the entering water captures air. The bubbles do not persist for any length of time, however, because the level of surfactants is low in pure water. When you add detergent and repeat the process you create a substantial amount of foam. A similar effect happens on a lake. If the level of surfactants is high then more persistent foam can be produced. The Skaneateles Lake Association funded an analysis of the foam that looked for man-made synthetic compounds. The results indicated that the foam was primarily the result of naturally produced organic compounds.

Important natural surfactants are the soluble organic molecules that enter the lake from such things as decomposing leaves on the watershed. If you soak dead leaves in water for a period of time you will note that the water turns brown and looks like tea. This is due to the presence of dissolved organic matter. In addition to leaves, there are many other forms of dissolved organic matter coming off the watershed that act as surfactants but right now dissolved organic matter, in general, appears to be the most likely source.

Thick lake foam covered the shoreline on much of the lake in the summer and fall, giving the appearance of snow on the lake.

Scientists have conducted very little research on lake foam, so we are pretty ignorant about how it works and what it does. An effort needs to be made to see if we can pinpoint the actual cause and possibly determine the impact of excessive foam on the lake. At this point there is no evidence to conclude that the excess foam is the result of anything other than a natural process. It is possible that it could be exacerbated by temperature or changes in weather patterns, in particular, a higher frequency of short, heavy rainstorms. At this point we just don't know. A few scientists at SUNY ESF and Syracuse University are conducting detailed chemical analyses looking for an answer. Stay tuned.

HWA: The Newest Forest Threat

Jessi Lyons, CCE Onondaga

Hemlock Woolly Adelgid (HWA) is an aphid-like insect that feeds on hemlock trees, appearing like a light layer of white wool under the needles and twigs. This newest forest invader was discovered in May 2013 in the Bahar Nature Preserve and has since been confirmed on hemlocks along shorelines on the south end of Skaneateles Lake. Once infested, trees with HWA will die in 4-12 years in our region.

Hemlocks are critical to the Skaneateles Lake Watershed and the quality of the lake. These majestic trees provide shelter for wildlife year-round, stabilize steep slopes in forests and along shorelines, and cool the streams and ravines that keep the lake cool, algal blooms and weeds at bay, and our native fish happy.

CCE and the City of Syracuse are working with Cornell University researcher Mark Whitmore to monitor the extent of HWA in the Watershed. One hope is to introduce a beetle native to the Pacific Northwest that can control HWA. We are looking for landowners willing to let us plant young hedgerows of hemlock perfect for breeding the biological control.

We will also be looking for volunteers who can help us scout for HWA and report signs. Winter is the best time to find these bugs, so get out your snowshoes!

New Waste Storage Facility at Fesko Farms

Ryan Cunningham, Skaneateles Lake Watershed Agricultural Program

A satellite waste storage facility was completed this summer at the Fesko Dairy Farm as part of their Whole Farm Planning process. The earthen storage is equipped with a concrete floor, concrete pump and drive ramps, as well as access road improvements. A grassed waterway and subsurface drainage system were also implemented to control stormwater runoff.

The 2.2 million gallon storage is used to collect farmstead waste including manure, animal bedding, milkhouse wastewater, and bunk silo runoff. The new facility gives the landowners an extended timeframe in which to apply nutrients to cropland. This provides the farm with a contingency plan in the event that severe winter weather or extended wet periods prohibits field access for manure spreading. The storage was built at a satellite location off the farm and adjacent to hundreds of acres of contiguous cropland for easy access while reducing the need for round trip trucking.

In recent years the farm has operated a dragline manure application system to transfer liquid waste to crop fields. This method is generally considered to be a much more efficient option for larger farm operations, as well as a beneficial and safer mode of transport for waste. Using up to two miles of flexible hose attached to large tractors, operators are able to apply the liquid directly into the topsoil layer without the need for tanker hauling on roadways. Depending on the implements attached to the tractor, the applied liquids can then be disked right into the soil layer immediately after application. Ultimately, this increases organic matter and nutrient absorption in the soil, reduces odor, and significantly reduces the potential for manure-laden runoff from washing into nearby waterways. These new management practices will help ensure that waste generated on the farm can be handled appropriately and used effectively.

The implementation of these best management practices was made possible through funding from the NYS Environmental Protection Fund, the U.S. Environmental Protection Agency and the City of Syracuse.

LakeScaping – Protecting Your Shoreline from Erosion

Roy Widrig CCE Onondaga Water Quality Educator

Skaneateles Lake is one of the most beautiful of any of New York State's Finger Lakes, and much of this beauty stems from the limited development of its shorelines. Native shorelines provide pleasing aesthetics for residents, havens for habitat-sensitive wildlife and contribute to a functioning, whole ecosystem. Lakeshore property owners can aid in the sustainability of Skaneateles Lake by protecting the shoreline from winter and spring erosion with simple, natural restoration techniques.

The simplest and most affordable way to stabilize a shoreline against erosion is "soft armoring," or using logs, native plants, root wads and vegetative mats to revegetate the shoreline. As this creates a living shoreline, it can adapt to changes in the environment and maintain itself by reproducing naturally. In most cases, soft armoring with small trees, shrubs and grasses does not significantly affect the view of the lake. Soft armoring is generally an easy thing to do and rarely requires the use of outside contractors. Often, the work can be done by the landowners themselves when the proper permitting requirements have been met.
All excavation and fill below mean high water mark of Skaneateles Lake will require a permit from NYSDEC.

"Hard armoring" employs the use of rock rip-rap, retaining walls and other artificial, solid barriers to work against wave action along the shoreline. Licensed professionals and permits may be required to install hard-armoring. The severe erosion resulting from intense storms in recent years has necessitated professional consultation and services for many Skaneateles shoreline residents.

Extreme storm events coupled with poor bank stabilization and improper landscaping above the shoreline undercut the tree roots and severely eroded the bank. Soft-armoring may still be an option to restablize this slope. Photo by John Sutton.

A combination of hard armoring and softscaping can protect your shoreline, the Lake, and add aesthetic appeal.

If a hard-armored bank is needed, you can use it to your landscaping advantage. Rip-rap and creatively placed stones can allow opportunities to plant native vegetation, and extend protection of the shoreline. For more information on shoreline and streambank stabilization, visit CCE Onondaga's Skaneateles Lake Watershed website at www.extendonondaga.com.

Cornell Cooperative Extension of Onondaga County and the City of Syracuse Department of Water partner to provide watershed education within the Skaneateles Lake Watershed. Watershed residents play a vital role in protecting the quality (and associated beauty) of Skaneateles Lake. Cooperative Extension provides residents with the latest tools and resources to help protect Skaneateles' pristine water quality. This newsletter was compiled and edited by Cornell University Cooperative Extension of Onondaga County. If you have specific water quality questions please contact CCE Onondaga at 315.424.9485 or visit: www.extendonondaga.org.

Cornell University
Cooperative Extension
Onondaga County

The Atrium, Suite 170
2 Clinton Square
Syracuse, NY 13202

NON-PROFIT ORG.
US POSTAGE
PAID
PERMIT NO. 3381
SYRACUSE, NY

SIGN-UP FOR THE ELECTRONIC WAVE REVIEWS TO LEARN MORE ABOUT YOUR SKANEATELES LAKE WATERSHED!

VISIT WWW.WATERSHED.EXTENDONONDAGA.ORG

Upcoming Events & Activities

- Maple Workshop - December 13 Plainville Fire Hall
- Hemlock Woolly Adelgid Winter ID Training & Hikes - January & February
- Landscaping for Water Quality Summer Conference
- Septic System and Well Water Testing

Helpful Contacts

Cayuga County Health Department	315-253-1560
Cayuga County Soil & Water Conservation District	315-252-2171
Cornell Cooperative Extension of Onondaga County	315-424-9485
Cortland County Health Department	607-753-5036
Cortland County Soil & Water Conservation District	607-756-5991
NYS DEC Syracuse (Permits)	315-426-7438
NYS DEC Spill Prevention and Response	800-457-7362
NYS DEC Petroleum Bulk Storage Help Line	518-402-9543
NYS DEC Cortland County (Permits)	607-753-3095
Onondaga County Health Department	315-435-6600
Onondaga County Soil & Water Conservation District	315-457-0325
Skaneateles Lake Watershed Agricultural Program	315-457-0325
Syracuse Water Department (Skaneateles)	315-685-6486
Watershed Program Coordinator (Syracuse)	315-473-2609

Funding for Cornell Cooperative Extension Water Quality Education in the Skaneateles Lake Watershed is provided by the City of Syracuse Department of Water.

Cornell University
Cooperative Extension
Onondaga County