CAYUGA COUNTY
Water Quality Management Agency
WATER NEWS

December 2020

Owasco Watershed Lake Association (OWLA) Update
By: Rick Nelson

OWLA's volunteers were active this past Summer and Fall helping to improve the Lake's water quality.

One of OWLA's current priorities is improving watershed awareness using additional informative signs. Under the guidance of the Owasco Lake Watershed Inspection and Protection Division, 140 circular storm drain medallions were installed near various street drain grates throughout the Villages of Moravia, Locke, and Groton. These simply state "No Dumping – Drains to Lake". More are planned for next year to provide additional coverage. OWLA also cost shared the purchase of Lake Friendly Living (LFL) logo signs to be installed on the 25 pairs of Tributary Awareness signs currently located in Niles, Owasco, and Fleming. Under this joint program with the Owasco Lake Watershed Management Council, 25 more pairs of similar Tributary signs and poles will be ordered to which LFL logo signs will be attached.

1 Storm drain medallion.

The Harmful Algal Bloom spotters completed their weekly observations in early October.

The OWLA Board organized a lakeshore clean-up day on Saturday, Nov 7th. Many bags were filled with discarded "presents" that ranged from fireworks to the usual cans and bottles. Plans are underway for another collection day in late Spring.

The next update will highlight the many road side ditch remediation projects completed in 2020 by the Cayuga County Soil and Water Conservation District personnel. OWLA is proud to be able to provide a 25% cost share for these important drainage and erosion control measures.

Happy Holidays.

What is soil health and how does it affect the watershed?
By Jason Cuddeback, CCA
Cayuga County SWCD

Soil health, also referred to as soil quality, is defined by the USDA- Natural Resources Conservation Service as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans. In short, SOIL (the brown stuff that we stand on) is extremely important to water quality, throughout the multiple watersheds of Cayuga County.

How do we know if we have healthy soils?
Bury underwear! YES, underwear can be a quick and dirty visual aid for soil health. If you have a pair of tighty whities (100% cotton, no dyes) and you bury them 4-6 inches underground in a farm field, lawn, garden, or landscaping and leave them for 6-8 weeks you should have some interesting results. Utilizing

this method to measure your biological (bacteria, earthworms, fungi) within the soil allows a landowner to gauge the level of biologic friends that are in the soil profile.

The picture below shows how microbial action in the soil works. The new, white pair of underwear is on the far left ready to be buried. The middle pair of underwear indicates biological activity in the soils is present and shows some cotton decay. The far-right pair of underwear is holding on by a thread, indicating high microbial activity along with high decay. What does this all mean? Minimal or low decay present in the cotton underwear will represent lower biological activity and low organic matter. Conversely, a high decay of underwear, implies increased biological activity and increased organic matter.

Agriculture has a strong presence in Cayuga County and the local farms continuously work on improving soil quality and soil biology to maintain strong and healthy crops. The main practices that assist with improving soil health are cover crops, crop residue management and reduced tillage management. When utilized independently, these Best Management Practices work well on the landscape, but when combined, they could result in replicating the extreme active soil biology shown in the above pictures.

What are cover crops, crop residue management and reduced tillage management?

Cover crops are defined as vegetation planted after the main crop is harvested, to manage soil erosion, soil fertility, soil quality, water, weeds, pests, diseases, and biodiversity. Cover Crops can be grasses (annual or winter hardy), legumes (clover or peas), brassicas (turnips or radish), forbs (sunflower) or a mix of these. The primary function of a cover crop is to slow the rate of soil erosion from farm fields. This is achieved as a result of their roots holding tightly to the soil, in turn causing a reduction in the velocity of surface flow of water during storm events. Cover crops also absorb and scavenge for nutrients that can be utilized by the field crop planted in the following Spring.

2 *Cover crops in Cayuga County*

Crop residue management is defined as managing the amount and distribution of crop and other plant residue on the soil surface year-round, while limiting soil-disturbing activities. It can be performed utilizing multiple types of machinery such as a single pass with a primary tandem disc or a terradisc (pictured below). Incorporating the crop residue, such as corn grain stubble or cover crops, will build organic matter in the soil for the soil biological life (bacteria, earthworms, fungi) to feed on.

3 Residue management, Dutch Hollow Brook, Owasco Watershed

Reduced tillage management is defined as reducing the number of passes of tillage before planting. The reduction in the number of tillage passes increases organic matter, decreases water evaporation, and also decreases fuel consumption.

The next time you look at your lawn or see a farm field ask yourself what would underwear look like if it was buried?

For more information on Best Management Practices related to soil health, please contact the Cayuga County SWCD at 315-252-4171 x4.

Invasive Ghosts of Seasons' Past / New Practices for Seasons' Futures
Authored by: Walt Aikman, PhD
Coauthored by: The Owasco Lake Watershed Inspection and Protection Division

Ambitious actions continue to occur throughout the watershed to remediate negative water quality impacts from activities of yesteryear, including attempts to control the spread of invasive species throughout the Owasco Lake Watershed. Despite challenges of navigating a public health crisis, those efforts have managed to remain throughout 2020. An example of this protection determination is on display at the town of Owasco highway department facility, located on the northeastern corner of the Owasco Lake.

More than a generation ago, the town of Owasco expanded their Water Filtration Plant and Highway Department operations behind their East Lake Road facility. As the town constructed parking and material storage areas, they inadvertently filled and impacted an onsite regulated wetland. The wetland, A-18, is

a regulated 47.5 acre seasonally flooded, palustrine forested wetland (code PFO1E), and a small section of the Southern-most portion of this wetland was impacted by the Town's public works activities.

In 2018, inspectors from the NYS Department of Environmental Conservation visited the site to discuss the water filtration plant operations and noticed the wetland violation. In response, the town was issued a draft consent order to restore and protect 0.29 acre of the regulated wetland and reestablish an additional 0.45-acre adjacent site. A restoration plan prepared by GHD Consulting (Buffalo) was approved in the Spring of 2020.

The total area of land planned for restoration might not seem significant. Yet, for a busy public works facility like Owasco's, losing nearly a quarter of their operational space is a serious hardship. To make matters more difficult, along with removing decades of compacted street millings and debris, and installing protective guardrails, the town was also required to remove and control the notorious invasive plants common reed, (*Phragmites australis*), and Japanese Knotweed (*Fallopia japonica*) within the restoration areas. Unfortunately, these invasive plants are increasingly common throughout the Owasco Lake Watershed.

Originally, the NYS DEC scientists were unaware that Japanese Knotweed was spreading within the project footprint. Upon notification, we incorporated control of this plant into the town's "schedule of compliance." Knotweed grows in large stands and is abundant throughout the Owasco Flats, along the Owasco Inlet from Groton to Moravia, and can be seen behind the mini-mart on the traffic circle near Emerson Park. Knotweed prefers habitat along stream banks and upland sites alike. It spreads from rhizomes (or "runners"), horizontal stems that creep through the ground. It does not spread very successfully from seed. Typically, the top part of Knotweed's rhizomes creates a thick mat on the surface of the soil that easily breaks apart. They become the plant's principal means of spreading and reproduction when pieces of that mat wash downslope or downstream.

A visual survey of the site made clear that Phragmites has also taken hold in much of the wetland behind the highway department. Like Knotweed, this plant grows and spreads quickly, rapidly colonizing wet areas, and easily out-competing native plants, such as cattails. Phragmites also spreads through rhizomes that reach deep into wet soil. It is a prolific seeder and is notoriously difficult to eradicate, so much so that scientists suggest we give up trying to eradicate it and learn how to manage it.

By the end of July of 2020, all Phragmites discovered at the restoration site were disposed of in an upland bunker nearby. The Knotweed was carefully excavated by highway staff and transported, as required, to the Auburn landfill. Even with the dry conditions and little rainfall this summer, it was amazing (and humbling) to discover where Phragmites and Knotweed persisted. Phragmites runners grew more than 35 feet in just a matter of weeks, and Knotweed stems kept reappearing many yards away from their primary cluster.

That same month, the town highway department staff had reached native soil and constructed two stable, rock-lined drainage channels. By the end of August, the new protective guardrail was installed and staff had placed the new wetland delineation signage to prevent future encroachment into the restored areas. Our final compliance work was completed this fall after the town highway staff layered new topsoil, hydro seeded the site, and planted 45 species of native grasses, herbaceous plants, shrubs, and trees.

Hundreds of staff hours have gone into this important wetland and watershed protective effort and the work will continue. The consent order requires monitoring of the site for 5 years to ensure plant survival and keep invasive plants at bay, and requires replanting when and where necessary. Two principal management approaches for the invasive plants will be deployed: targeted herbicide application of Phragmites along the edge of the remediation site, and mechanical arresting of Knotweed growth at the locations where it was excavated.

State law requires the town of Owasco to apply for a wetland permit to conduct the herbicide application, and we'll proceed with that process as a five-year project beginning in 2021. We'll try a new approach with the Knotweed, adopting a technique pioneered in Britain: laying a ¼ inch screen on the soil in the early Spring to effectively girdle and discourage the emerging stems.

This project illustrates the expensive, sensitive, and hard work that is involved with conserving the upland wetland complexes in the Owasco Lake Watershed. Nevertheless, these wetland areas are vital to the health and vigor of the dynamic Owasco Lake ecosystem. From the very beginning, the Town of Owasco has worked to achieve a successful fulfillment of their legal and environmental obligation to restore the impacted wetland and provide a terrific demonstration of remediation and invasive plant management for the entire Owasco Lake Watershed.

An overhead view of the Owasco Public Works wetland restoration area. Excavation of new wetland area began in 2020, illustrated in the center of the photo.

Dr. Walt Aikman is a forestry consultant working with the Town of Owasco. You can reach him via his website, EartHeritage.com, Facebook, or his cell, 315-283-6710.

Protecting water quality in a changing climate
The Cayuga Lake Watershed Network

During this astonishing year, the Network has benefited from the emergence of two paired programs for watershed residents, designed to provide information pathways to area residents who want to better protect our water resources, on the lake and across the watershed. Wherever you live!

Lakeside Living in a Changing Climate
A handbook (in print and an available online) researched and produced by Board member John F. Abel and Summer Intern Abbey Yatsko.

The realization that climate change affects nearly all aspects of both the health of Cayuga Lake and the quality of lakeside living has been the impetus for this handbook. Its intent is to bring together the informational resources that a lakeshore homeowner might need not only for day-to-day living but also for home and landscaping improvements that preserve the lake while also responding to climate change.

Users of this handbook are invited to note how easy it is to get started to be both climate-minded and lake-friendly. The handbook is organized into three main opportunities for action by lakeshore residents, and each main action can be initiated with a simple step as follows:

- Reduce carbon emissions at home – a simple starting step is to obtain a free home energy audit for your residence.
- Mitigate climate change effects at home – a simple starting step is to join the Lake Friendly Living program and perform a self-assessment of your to-date lake-friendly living habits.
- Take lake-friendly actions as an engaged resident in the watershed – a simple starting step is to join the Cayuga Lake Watershed Network and become an active volunteer or member of local and regional environmental organizations.

More details and a rich plenitude of hyperlinks to informational resources are within the handbook that one can download at our website here.

Lake Friendly Living

- Board members Ed and Nancy Currier & staff Jenn Tufano Grillo have helped tie us into this Finger Lakes-wide, free program.
- Other Finger Lake groups have much higher participation! We need to catch up.
- Please go to our web page to sign the pledge, or contact us. Get involved!

What happens around your home matters downstream. As one of the residents who use Cayuga Lake as a primary water source or for recreation, you can make a difference in the water quality of the lake. The Cayuga Lake watershed encompasses approximately 785 square miles where storm water runoff moves into the lake and impacts its water quality. Residential properties generate part of that runoff.

Join our Lake Friendly Living program and adopt Lake Friendly Living practices!

The program is simple and focuses on three key ways to help protect Cayuga Lake.

- Minimize Runoff
- Eliminate Pollutants
- Capture & Infiltrate Runoff

Watch for a Finger Lakes-wide water celebration this spring, sponsored by the LFL program!

Sign up & take the pledge – and check out Smart Steps for Clean Water.

Cayuga County WQMA

For more information about the Cayuga County Water Quality Management Agency, check out our website at www.cayugacountywater.org. The Cayuga County WQMA is also on social media. For up to date information on water quality issues and events, please either friend us on Facebook at https://facebook.com/CayugaCoWQMA or follow us on Twitter at https://twitter.com/CayugaCoWQMA.

The Cayuga County WQMA is looking for story ideas for its webpage and its newsletter. If you have something you would like to share, please email us at wqma@cayugacounty.us.