

Kettle Lakes Watershed News

A CONSERVATION COLLABORATIVE PUBLICATION

GET TO KNOW THESE KETTLE LAKES WATERSHEDS

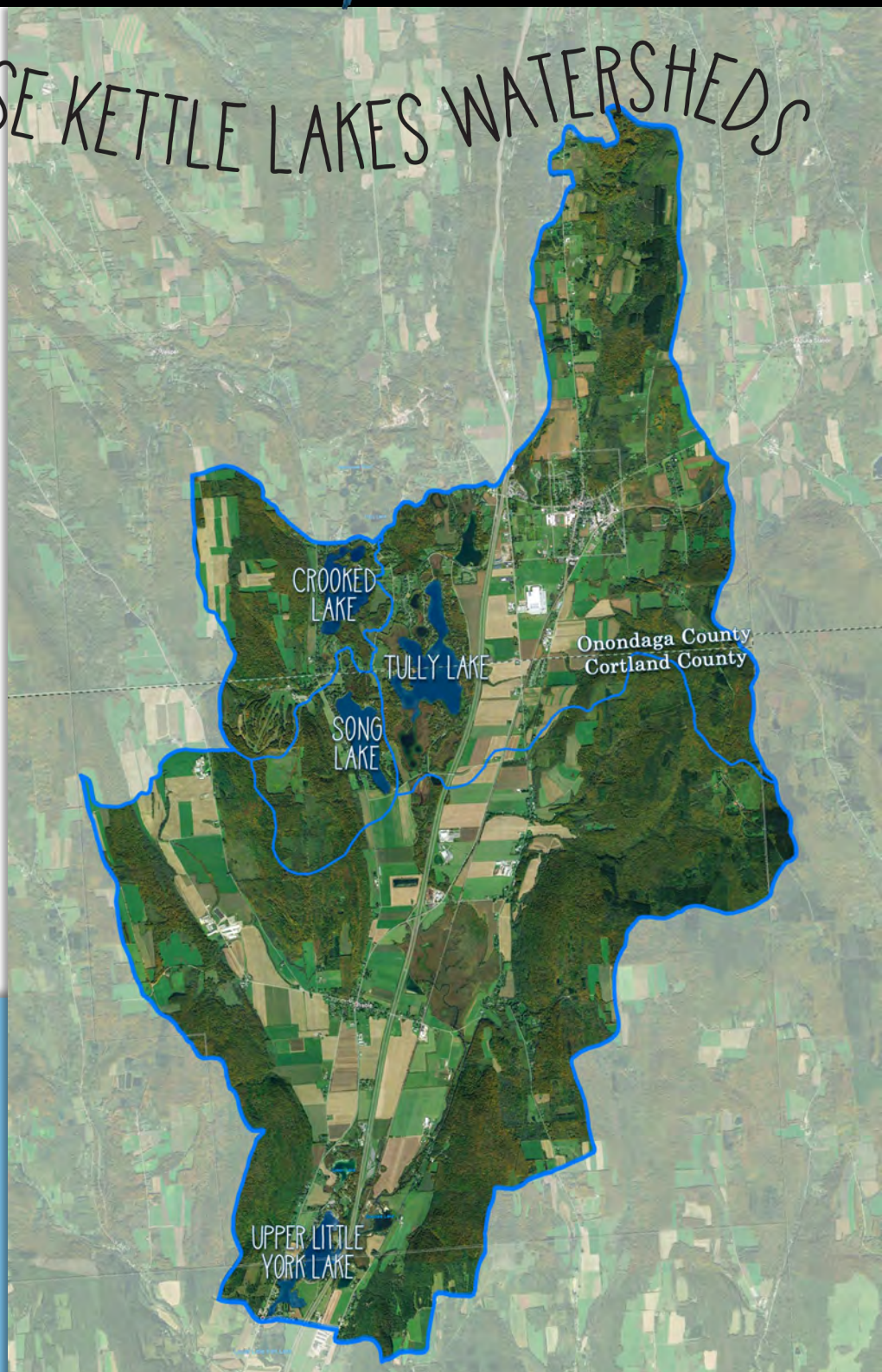
THE 4 LARGEST KETTLE LAKES IN THE REGION

Crooked Lake partially drains northeast to Onondaga Lake and partially south along with Tully Lake, Song Lake and Upper Little York Lake to the Susquehanna River and the Chesapeake Bay.

- **CROOKED LAKE:**
1,459 acre watershed,
106 acre lake,
14:1 watershed to lake ratio.
- **SONG LAKE:**
788 acre watershed,
105 acre lake,
8:1 watershed to lake ratio.
- **TULLY LAKE:**
6,476 acre watershed,
226 acre lake,
29:1 watershed to lake ratio.
- **LITTLE YORK LAKE:**
19,296 acre watershed,
101 acre lake,
191:1 watershed to lake ratio.

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WATERSHED PLANNING IN THE KETTLE LAKES OF NEW YORK'S SOUTHERN HILLS

Article by: Meredith Perreault, Program Manager at Center for SU Environmental Finance Center and Tarki Heath, President, NYS Federation of Lake Associations & C-OFOKLA

There are numerous small and moderate sized Kettle Lakes at the headwaters of the Susquehanna River system, flowing south to the Chesapeake Bay. Each lake shares a hydrogeological history, having been formed at the same time as the Finger Lakes, by the retreating Pleistocene Glacier. The largest of these are Crooked, Green, Little York, Song and Tully Lake. While remaining unique, they also share some common watershed issues.

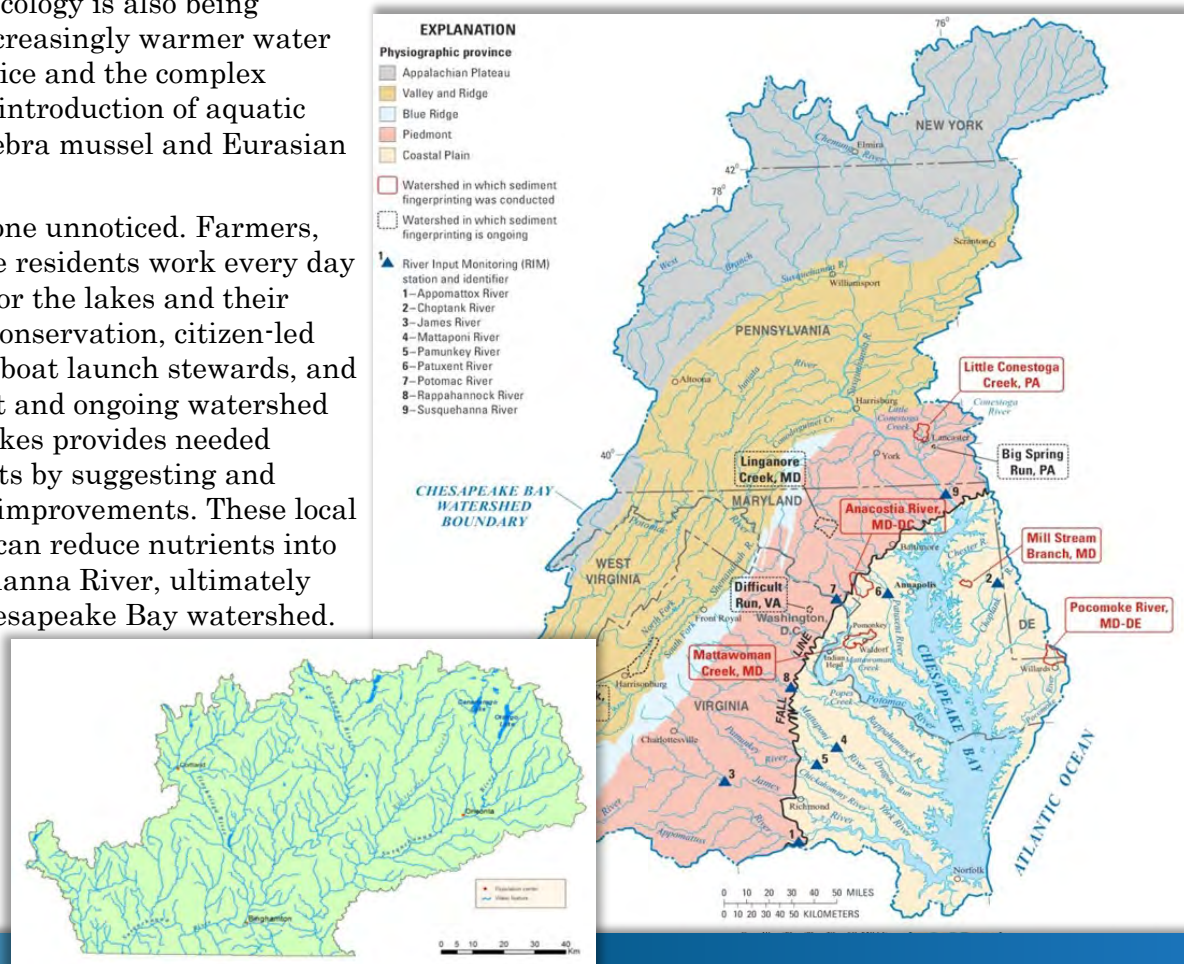
These Kettle Lakes are treasured for their scenic beauty as well as their swimming, fishing, and boating opportunities. Although a valued resource, historically these kettle lakes have a history connected to the industrial salt mining of the 19th and 20th centuries along with the development of roads, housing and agriculture commonly seen across the region. These lakes have periodically suffered from elevated phosphorus concentrations, lack of oxygen, harmful algal blooms, and dense aquatic vegetation. Lake ecology is also being negatively impacted by increasingly warmer water temperatures, less winter ice and the complex changes brought with the introduction of aquatic invasive species such as zebra mussel and Eurasian watermilfoil.

These changes have not gone unnoticed. Farmers, landowners, and lakeshore residents work every day to improve water quality for the lakes and their watershed, through land conservation, citizen-led water quality monitoring, boat launch stewards, and educational events. Recent and ongoing watershed planning for the Kettle Lakes provides needed information to the residents by suggesting and prioritizing water quality improvements. These local watershed improvements can reduce nutrients into the lakes and the Susquehanna River, ultimately benefiting the broader Chesapeake Bay watershed. The Cortland-Onondaga Federation of Kettle Lake Associations (C-OFOKLA), Cortland County Soil and Water Conservation District, Princeton Hydro, and

the Syracuse University Environmental Finance Center prepared small-scale *Watershed Implementation Plans* (WIPs) for Tully Lake, Crooked Lake, Song Lake and Little York Lake in 2017. Development of the WIPs included field assessment, water quality sampling, an analysis of pollutant loading, and incorporated local knowledge of the watersheds. Each plan examines harmful stormwater impacts and suggests projects for nutrient reduction.

Whether a lakeshore resident, creek-side landowner, or a farmer managing acres of crops and pasture, community members can use project ideas presented in the plans to benefit their own land and the watershed. The plans can be found at the C-OFOKLA website:

<https://www.cofokla.org/lake-management/>



CHESAPEAKE BAY CONNECTION

Article by: Lydia Brinkley, USC Buffer Coordinator

Did you know that the Kettle Lakes watershed sits at the most northernly spot in the Chesapeake Bay Watershed? These kettle lakes, including Little York, Song, Crooked and Tully Lake, are referred to as being in the “headwaters” of the Chesapeake Bay, otherwise known as the Upper Susquehanna River Watershed. This area of the Chesapeake Bay watershed is located upstream of the gauging station in Towanda, Pennsylvania, encompassing a large portion of the southern tier of New York and northern tier of Pennsylvania. This area is about 7,500 square miles in size with over 17,000 miles of streams. With 13,000 miles of road and 23% of the land use as agriculture within the watershed, many water quality challenges exist.

In 2010, the Environmental Protection Agency established the Chesapeake Bay Total Maximum Daily Load (TMDL) to address nutrient and sediment pollution within the Bay watersheds’ streams, rivers, and lakes. As part of the watershed, New York State developed a WIP to address the TMDL allocation. The NYS Department of Environmental Conservation, working with the Upper Susquehanna Coalition (USC) recently completed the Phase III WIP, outlining priority water quality practices needed to reach our nutrient and sediment reduction goals by 2025.

Riparian (or streamside) and wetland restoration top the charts in terms of nutrient and sediment reduction benefits. Therefore, there are large goals to meet within the entire Chesapeake Bay watershed in terms of riparian and wetland restoration. These practices are challenging to install as they often result in agricultural land being taken out of production. Fortunately, these

practices add to the region’s habitat connectivity, complexity, and diversity wherever they are installed.

Riparian and wetland restoration lead to flood attenuation, and reduce the timing and volume of stormwater peak flows. As water slows, sediment and nutrients drop out, helping to provide clean water downstream. Planting trees, shrubs, and wildflowers in these areas adds habitat complexity for aquatic animals (brook trout), animals that have an aquatic stage (amphibians and insects), and many others that use these spaces for water, food, nesting, or raising young.

As a coalition of 22 Soil and Water Conservation Districts in the Upper Susquehanna River Watershed (18 in NY and 4 in PA), the USC and partners promote conservation practices such as riparian and wetland restoration. In the Kettle Lakes Watershed and the Upper Tioughnioga River in general, species of priority such as the eastern brook trout and black duck make this an ideal area to gain habitat and increase water quality. Within this newsletter you will find examples of conservation practices being installed on farms, in parks, and on small lakeshore properties. All of these efforts collectively go a long way in helping water quality locally and downstream to the largest estuary in the United State, the Chesapeake Bay. If you are interested in being involved in habitat and water quality, on your land, or as a volunteer, please contact your local Soil and Water Conservation District.

Corridor restoration before



Corridor restoration after



COVER CROPS

Article by: Kathy McGrath, Cortland SWCD Water Quality Specialist

Town of Preble, Cortland County

The larger farms within the Kettle Lakes watersheds and especially the farms regulated as CAFOs (Confined Animal Feeding Operations) are required to have Comprehensive Nutrient Management Plans (CNMPs). A farm's CNMP often recommends the use of cover crops to reduce or control nutrient loss from tilled fields. Once the desired crop, often corn, is harvested in the fall, a cover crop is planted to provide vegetative cover on the field until the following spring planting season. Cover crops are typically wheat, rye, or triticale. In some cases the cover crop is able to be harvested as a benefit to the farm; in many cases cover cropping results in a net cost to the farm.

Cover crops provide multiple nutrient management and water quality benefits. The cover crop takes up nutrients, reducing the amount of nutrients available to wash off the field during erosion events. In addition, because the soil is no longer bare, rainfall and stormwater runoff effects on erosion are significantly reduced through the combined effects of dampening the power of rain

to dislodge soil particles and the stabilizing effects of the cover crop roots within the soil.

At least three farms within the Kettle Lakes watersheds have implemented cover cropping on their farms in the past 5 years. In Cortland County, farms with cover crops planted 200 to 1000 acres per farm per year from 2015 to 2019.

Funding Sources

Upper Susquehanna Coalition, New York State Department of Environmental Conservation Agricultural Nonpoint Source Abatement funding program.

PROJECT PARTNERS:

- ◆ Agricultural Producers
- ◆ Cortland County SWCD
- ◆ NY Department of Environmental Conservation
- ◆ Upper Susquehanna Coalition



A field in April with a cover crop that was planted the previous fall, Preble, NY.



Closer view of a cover cropped corn field, Preble, NY

increase water infiltration	add soil organic matter	keep soil biology alive	hold soil in place over winter
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MANURE APPLICATION UNCOVERED

Article by: Amber May Paice, Yorkholm Farm, Tully, NY

Even though snow surprises us from time to time in early spring months, manure spreading by local farmers should never be a shock to us. The fields that keep the areas surrounding our neighborhoods green are being prepared for planting, and successful farming and agriculture is the reason that these areas remain green rather than developed by residencies or businesses.

Agricultural production is good for us because not only is it beautiful to walk, bike or drive by an open green field, but it also creates locally produced food products for our consumption. Field nutrient management is vital to agricultural success. As a Farm Planner in Onondaga County I've noticed that there are always many questions about manure spreading, which is completely understandable. I will share some information about this topic here:

- ◆ *The ground produces food for the animals, and then animals produce organic matter for the ground.*

As nutrients are used by the plants to grow into food, the animals that consume the plant-based feed absorb some of the nutrients for their health, but many of the nutrients return to the ground in the form of manure. This manure is often stored on the farm during winter months and is then applied to fields prior to planting in the spring.

- ◆ *Manure Storages Only Hold So Much.*

Eager to spread manure as soon as possible in the spring, farmers often face the reality that the storage fills up, sometimes holding tens of thousands of gallons of animal waste and the structure itself costing hundreds of thousands of dollars to build. Manure Storages were created to help farms manage their nutrients, allowing them to spread manure during optimal weather conditions and not spread when at highest risk for runoff. An overflowing storage can be dangerous to encounter and extremely expensive to clean up. The environmental costs of this can be devastating. To deter this possibility, many farmers prefer to spread manure as soon as possible after the spring thaw.

- ◆ *When Organic Manure is spread, it is absorbed by the ground and early plant growth.*

The quickest growing season takes place in the early spring. The plants grow quickly and require the most nutrients during that season. This is the reason why manure is spread very early on in the spring before planting; so that the nutrients are available during highest need for absorption by plants.

There is a lot to know about manure spreading when it comes to application processes, the amount recommended to spread on each field, and the nutrient load and demand on each parcel. Farms work with Farm Planners to determine the needs of the farm, nutrient content of the soil and of the manure. In more recent years, a new practice called "incorporation" of manure into the soil, meaning they either directly inject the liquid manure nutrients into the ground, or fold the soil over top of the manure that is spread on the ground. Incorporation reduces odor and protects water quality even further. Manure spreading is sometimes unpleasant, but often a short-lived application leads to long term sustainability. The bottom line is, that if we want these fields to remain "green" we have to deal with the brown.



Case Study

TULLY LAKE SHORELINE LANDSCAPING (SHORESCAPING)

Article by: Colleen Zawadzki President, Tully Lake Property Owners Association

Tully Lake, Onondaga County

Tully Lake’s WIP recommended lakeshore and riparian buffers to reduce stormwater runoff to ensure the protection of lake water quality. C-OFOKLA (Cortland-Onondaga Federation of Kettle Lakes Associations, OCSWCD, Tully Lake Property Owners Association (TLPOA), Upper Susquehanna Coalition (USC) Onondaga Earth Corps (OEC) Earth Designs Landscaping and Consulting (EDLC) were collaborative partners in this initiative.

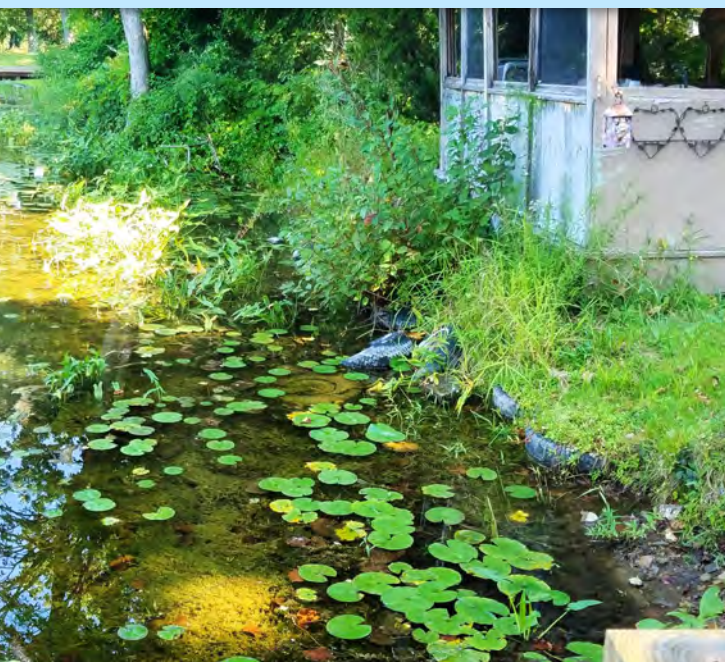
The funding source for this project was a collaborative effort with Onondaga Soil and Water Conservation District, distributing approximately \$6,500 toward this effort in 2018 and 2019.

Properties owned by seven Tully Lake residents voluntarily participated in this project. Approximately half were from the eastern shore of the lake and half from the western shore. They met to plan and implement the project with the president of TLPOA and a member of USC to design a plan that would meet the goals of diminishing run-off, creating a natural shoreline, and be pleasing and relatively maintenance free. One property selected, had a degraded tire retention wall, which was removed and replaced with a natural vegetative shoreline.

GOALS OF SHORESCAPING:

Captures stormwater runoff from roads, rooftops, and yards. Stormwater can carry seepage from aging septic systems, and keep water quality safe from salt and other pollutants. Ultimately, this has the potential to moderate storm surge. Among the benefits are:

- ◆ Trees intercept and absorb rainfall. They also create a shaded shoreline area which can lead to cooler lake temperatures more favorable to desirable fish
- ◆ Diminishes harmful nutritional overload to lakes which can decrease HAB outbreaks
- ◆ Decreases erosion
- ◆ Replaces invasive terrestrial species with non-invasive plants
- ◆ Replaces aging and degrading tire retention walls with a natural shoreline



Left and Center Photos: More than 43 tires were removed from a property on Mirror Lake, part of Tully Lake, and replaced with a natural landscaped shoreline.

Right Photo: Tully Lake resident and Earth Designs Landscaping and Consulting brought the tires to Tully Community Clean Up Day.

Case Study

DWYER PARK RIPARIAN BUFFER

Article by: Kathy McGrath, Cortland SWCD Water Quality Specialist

Dwyer Park, Cortland County

In May 2019, a Riparian Forested Buffer plan was implemented in Cortland County's Dwyer Park, along the shores of Green Lake. Dwyer Park is in the Town of Preble in northern Cortland County. Green Lake feeds into Upper Little York Lake which outlets into the Tioughnioga River in the Susquehanna River basin and the Chesapeake Bay watershed. The park is also located over part of the Cortland-Homer-Preble sole source aquifer – a source of drinking water for over 40,000 Cortland County residents.

The County was interested in re-foresting this area to help protect the lake, filter excess nutrients and potential runoff, and improve water quality and habitat. The one acre buffer protects over 550 feet of shoreline and ranges between 50 ft. and 150 ft. in width. In total, 260 trees and the associated tree tubes, stakes and weed mats were utilized. The planting was also supplemented with willow cuttings from the nearby SWCD willow plantation. Native trees such as red maple, swamp white oak and sycamore and shrubs such as red-osier dogwood, elderberry and arrowwood viburnum were planted, which will benefit songbirds and other wildlife.

Funding Sources

All labor and materials including plants, tree mats and tubes, planting labor and site preparation and maintenance were donated by the participating agencies.



PROJECT PARTNERS:

- ◆ Cortland County Soil & Water Conservation District
- ◆ NY Department of Environmental Conservation Trees for Tribes Program
- ◆ Cortland County Highway Department
- ◆ local volunteers



THE SCOOP ON AQUATIC INVASIVE SPECIES

Article by: Kathy McGrath, Cortland SWCD Water Quality Specialist

What They Are and Why They're Bad

Aquatic invasive species (AIS) are common in New York Lakes, including our Kettle Lakes. These species are non-native, which means they are native somewhere else and not native to central New York. But invasive means something more – they wreak havoc when they arrive because they are capable of dominating new areas. They have no natural predators controlling their populations, often reproduce quickly and their spread can be difficult to control. They disrupt natural food chains and harm our native species. They harm us too by

interfering with swimming, boating and fishing. AIS most often arrive in a new waterbody on boats but some can enter by swimming, moving passively with the water or be carried in on animals or fishing tackle.

AIS Threatening Our Lakes

More information on the aquatic invasive species already in the Kettle lakes and nearby waters can be found at the Finger Lakes Region PRISM website, this organization is dedicated to control and education regarding invasive species.

In all Kettle Lakes now:

Purple loosestrife



Photo by Steven Flint

Yellow flag iris



Photo by Colleen Zawadzki

In some but not all Kettle Lakes:

Zebra mussel – (LYL & Song)



Photo by Amy Benson, U.S. Geological Survey, Bugwood.org

Curly leaf pondweed – (Tully, Crooked & LYL)



Photo by Kristian Peters

Starry stonewort – (LYL & Tully)



Photo Finger Lakes PRISM

Eurasian watermilfoil – (Tully & Crooked)



Photo by Alison Fox, University of Florida, Bugwood.org

European frogbit – (LYL)



Photo by Meghan Johnstone, APIPP

Yellow floating heart – (LYL)



Photo by Greg Bales, Finger Lakes PRISM

CLEAN. DRAIN. DRY!

Not in the Kettle Lakes but not far away:

Several species are in other lakes not far from the Kettle Lakes. These include hydrilla, quagga mussel, water chestnut, brittle naiad, round goby, and fishhook water flea.

What's Being Done to Control Aquatic Invasives

The lake associations of each Kettle Lake has had an active program of invasive/nuisance weed plant control for many years, with funding assistance from the Cortland County and Onondaga County Soil and Water Conservation Districts (CCSWCD, OCSWCD) and the Onondaga County Department of Health. Management and control activities include chemical treatment on Little York Lake, benthic mats and weed harvesting (harvester purchased by Song Lake), and commercial weed harvesting on Tully Lake. The CCSWCD has installed weed disposal stations and provides boat stewards at public boat launches and this spring installed a Wayside Solar Waterless Boat Cleaning Station on Little York Lake. The CCSWCD also just received state PRISM funding to conduct AIS surveys on Cortland County lakes as well as surveys for yellow floating heart, European frogbit and terrestrial invasives (Dwyer Park) in Little York Lake. The lake associations are actively involved in several citizen science organizations

that survey aquatic vegetation (CSLAP, Plant Detectors Program) and map invasive species (iMap Invasives program).

What You Can Do to Help

Clean Your Boat - Transfer of a boat from one lake to another requires, by NYSDEC regulation, that the boat and trailer be thoroughly cleaned. This includes removal of all plant debris and disposal far from water, draining the bilge, livewell and bait buckets and allowing the boat and trailer to dry thoroughly before launching into a new waterbody. *Clean, Drain and Dry!*

Use only Certified Bait - Uncertified bait can introduce harmful bacteria and organisms into our lakes. Worms do not have to be certified.

Get Involved - Lake users can join any of the ongoing AIS control, surveying, and outreach efforts on your lake. Learn to identify and report aquatic invasives, educate yourself and others, and advocate for invasives control.

Invasive Species REMINDER!

The transfer of invasive species increases during the summer. Please be sure to follow all these best practices to keep invasive species out of our lakes.

STOP AQUATIC HITCHHIKERS!

If a boat has been on any other waterbody, do these things before launching:

- ◆ Be sure all mud, plants, fish and animals are removed from the boat
- ◆ Drain water from all equipment
- ◆ Thoroughly wash and dry all parts that contact the water



OPPORTUNITIES FOR CONSERVATION IN THE UPPER TIOUGHNIOGA RIVER BASIN

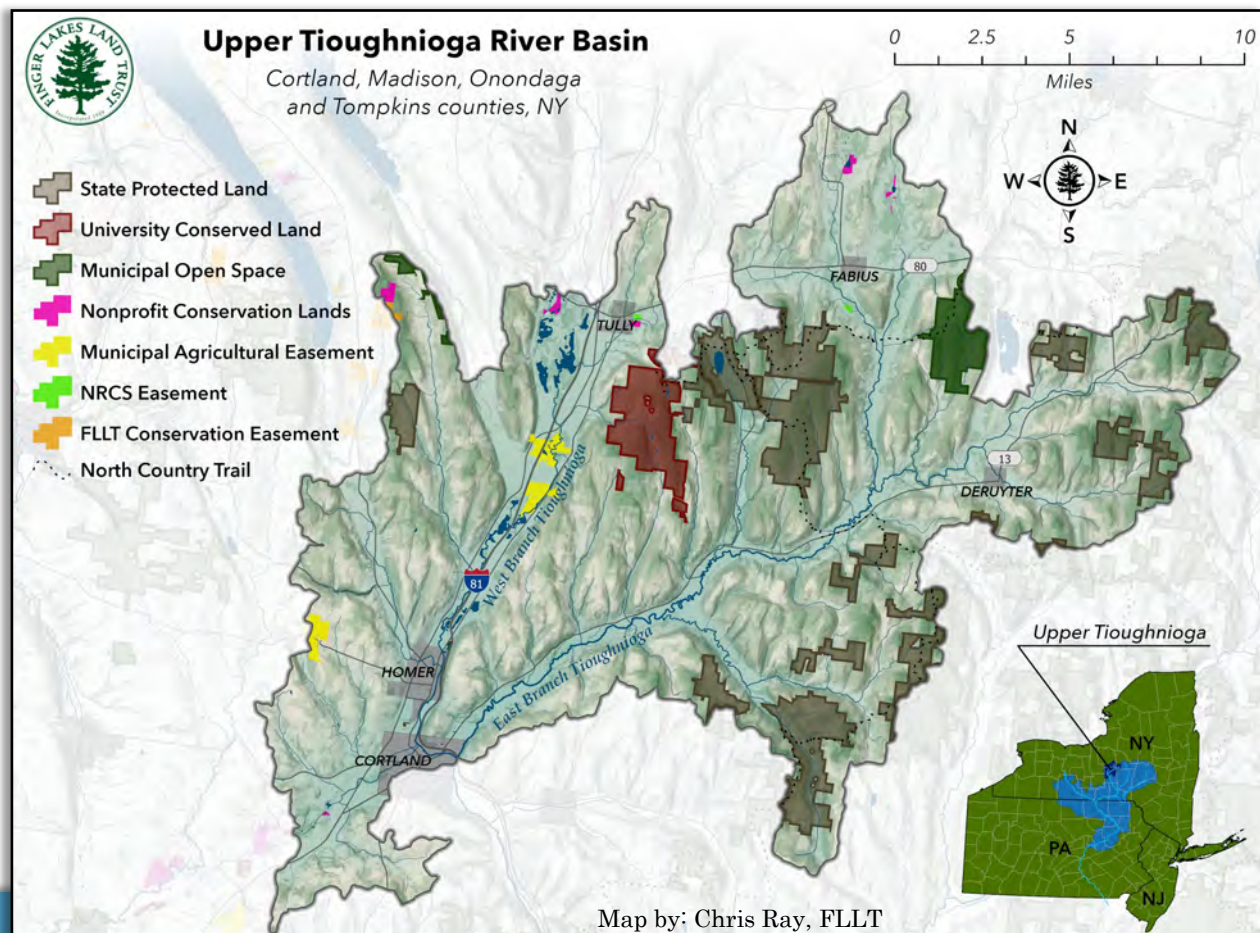
Article by: Article by: Max Hitner and Kris West, Finger Lakes Land Trust

Onondaga, Cortland and Madison Counties all contribute water to the east and west branches of the Tioughnioga River which flows to the Atlantic Ocean through the Chesapeake Bay. What happens on the land makes its way to waterways and drinking water supplies. Land conservation is inextricably linked to protecting our water – our most precious resource. The Upper Tioughnioga River Basin supports a range of recreational opportunities including hiking, hunting, fishing and paddling; and a diverse array of plants and animals. Publicly owned and managed lands at Morgan Hill State Forest and Labrador Hollow Unique Area provide public trail access. Privately owned rural land, which makes up the bulk of the land base, supports agriculture and forestry, and provides local food.

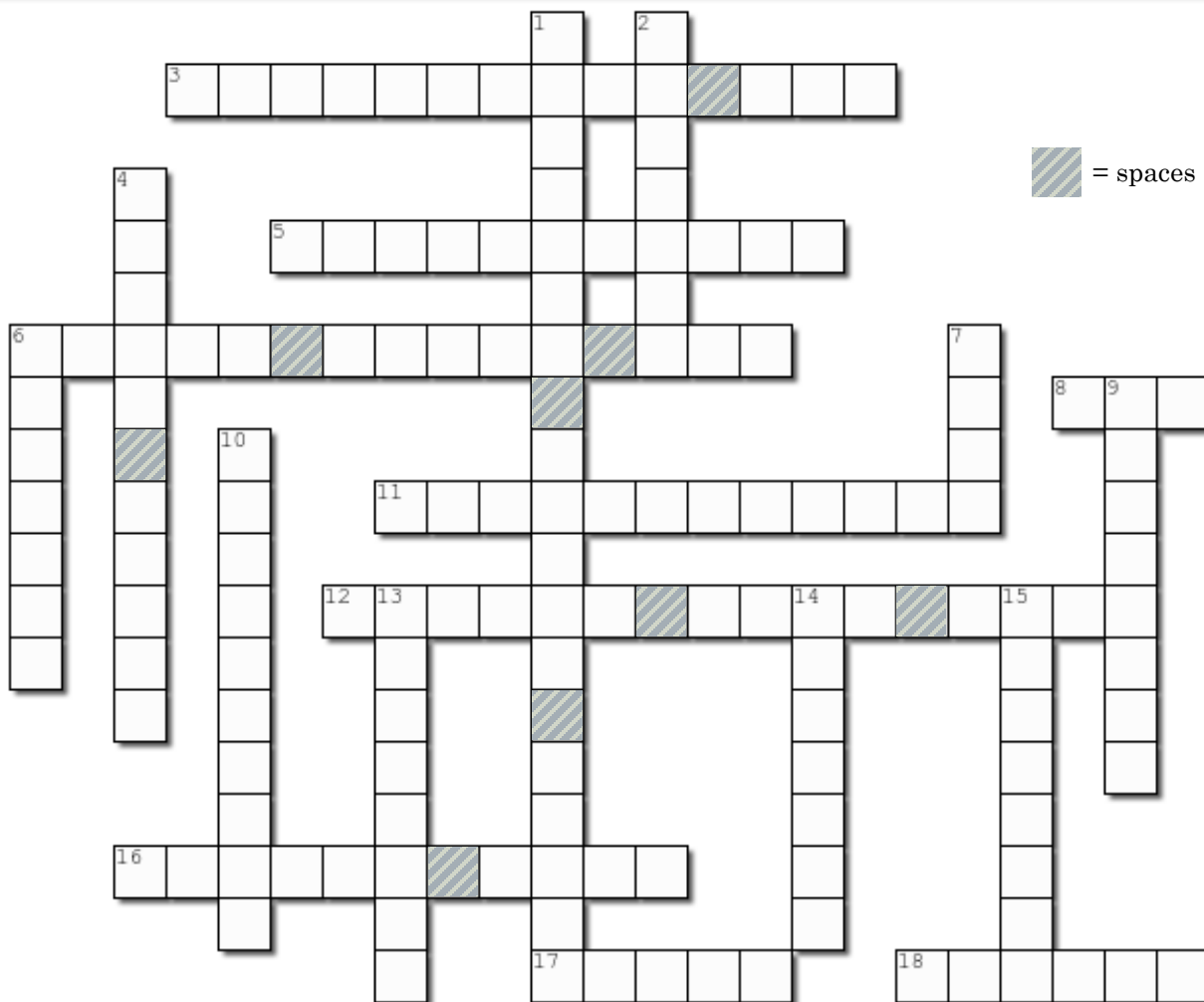
Decisions made by private landowners can influence water quality for generations to come. Thankfully, landowners do not have to work on their own. Resources are available both through public conservation organizations like local Soil and Water Conservation


Districts (SWCD) and the Upper Susquehanna Coalition (USC), and private non-profit conservation organizations like the Finger Lakes Land Trust. Many landowners are already familiar with SWCD and USC but there are often misperceptions about the role land trusts can play in supporting rural communities. The Finger Lakes Land Trust (FLLT) was founded in 1989 “to conserve

forever the lands and waters of the Finger Lakes region, ensuring scenic vistas, local foods, clean water, and wild places for everyone.” FLLT works directly with landowners by entering into permanent legal agreements called conservation easements. These agreements limit certain uses of the land while supporting traditional uses like farming and woodland management. Through real estate transactions (like donations or purchases) the Land Trust can help landowners add to a network of publicly-accessible properties. The Land Trust can also serve as a catalyst for restoration projects by linking landowners with organizations like the USC. The FLLTs’ resources are limited, so we focus our efforts in areas connected to other conserved lands or provide substantial water quality benefit. Please visit www.fllt.org to learn about FLLTs’ conservation options, to request more information or to support our work. The Upper Tioughnioga River Basin is special, and together, we can all play a part in passing its healthy, vital landscape to future generations.



KETTLE CROSSWORD



 = spaces

Across

- 3. Largest estuary in the United States
- 5. River that starts in NY and ends at the Bay
- 6. What you can do to your water craft before entering a new water body
- 8. A plan for water quality (abbreviation)
- 11. Captures stormwater runoff from roads, rooftops, and yards
- 12. Yellow flowering AIS in all kettle lakes
- 16. Largest watershed of the 4 main Kettle Lakes
- 17. Kettle Lake in both Cortland and Onondaga Counties
- 18. Cow poop

Down

- 1. A priority aquatic species in the Upper Tioughnioga River Watershed
- 2. Breeding habitat for salamanders
- 4. Controls runoff and erosion from tilled fields
- 6. Northernmost Kettle Lake
- 7. Which lake hums a tune
- 9. Species that are capable of quickly dominating an area
- 10. Excess nutrients, sediment and septic system seepage
- 13. Type of permanent protection on land
- 14. Dwyer Park sits over this
- 15. Streamside

Visit www.u-s-c.org/kettlelakes for crossword answers

For more information contact:
 Cortland County Soil and Water Conservation District
 100 Grange Place
 Cortland, NY 13045
<http://cortlandswcd.org/>

Onondaga County Soil and Water Conservation District
 6680 Onondaga Lake Pkwy
 Liverpool, NY 13088
<https://www.ocsxcd.org/>

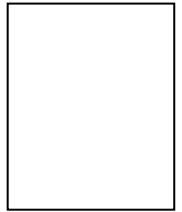
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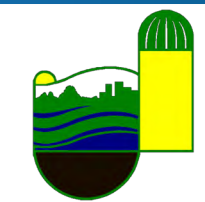


Please complete our brief watershed issues survey: www.u-s-c.org/kettlesurvey

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Cortland SWCD



**Environmental
Finance
Center**
Syracuse University



Onondaga SWCD



Conservation partners from throughout the region developed this newsletter together to share information and strategies for protecting water quality within the Kettle Lakes watershed and beyond. We hope that by sharing information with and learning from all community members who respect and enjoy streams, river, creeks, ponds, and lakes, we can address water quality issues now and preserve water quality for the future. Within this newsletter, you will find information about current challenges and solutions to water quality issues within the Kettle Lakes Watershed, as well as find information on what watershed residents and conservation partners are doing to address these issues and how you can get involved.