

Kettle Lakes Watershed News

A CONSERVATION COLLABORATIVE PUBLICATION

AQUATIC INVASIVE SPECIES OF OUR KETTLE LAKES

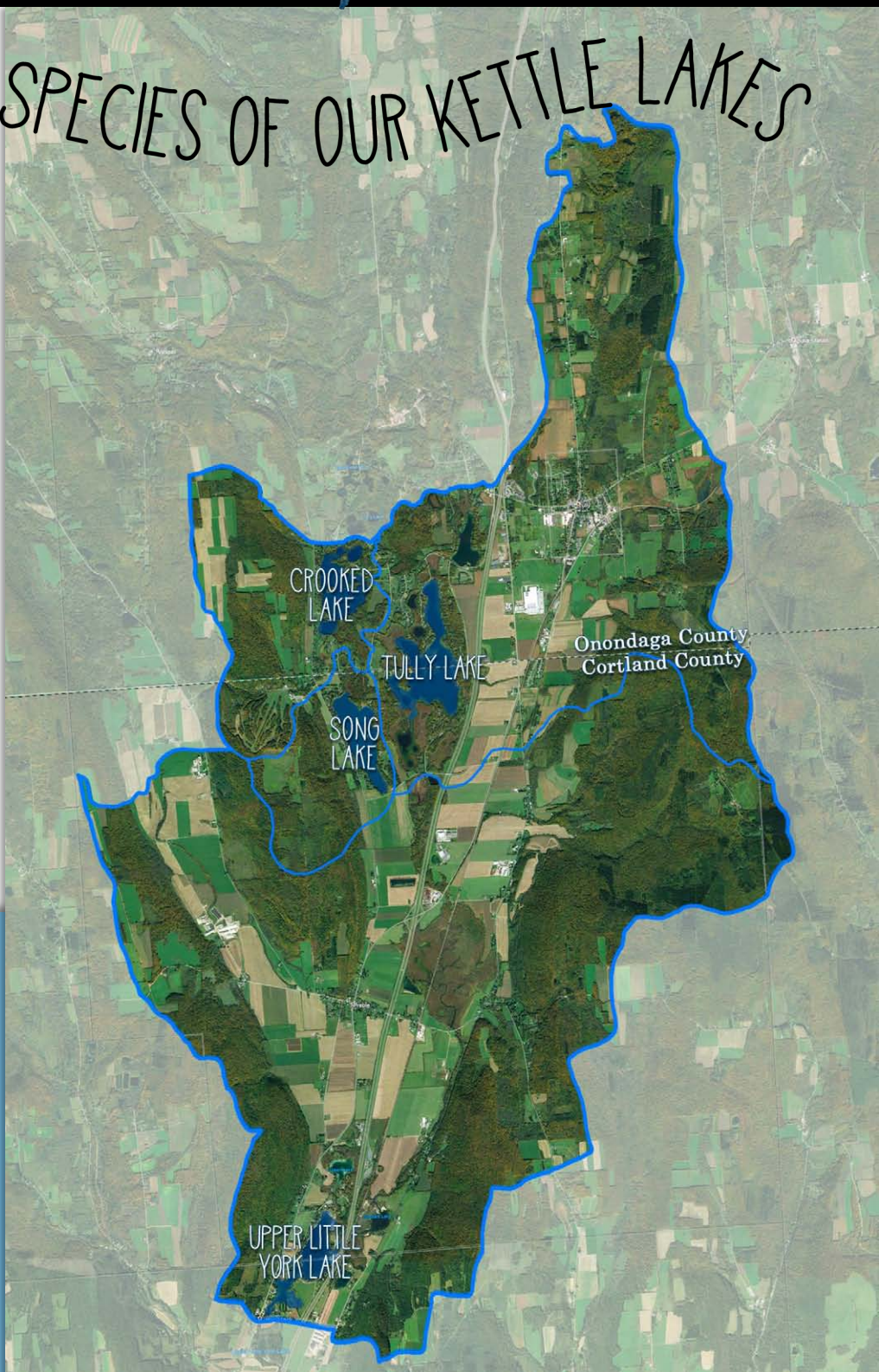
THIS ISSUE INCLUDES AN OVERVIEW OF AIS MANAGEMENT IN OUR KETTLE LAKES

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 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, they often reproduce quickly and their spread can be difficult to control. They disrupt natural food chains and harm our native species and they harm us too by interfering with swimming, boating and fishing.

In this issue of Kettle Lakes Watershed News, our partners at each Kettle Lake outlines efforts taken to inventory and manage their AIS.

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WATERSHED AND WATER INFRASTRUCTURE FUNDING SOURCES

Article by: Meredith Perreault, Program Manager at Center for SU Environmental Finance Center

For communities in the Kettle Lakes watershed, upgrading public water infrastructure and managing stormwater serve to preserve and protect water quality. Soil and Water Conservation Districts and municipalities representing small communities find that grants, loans, and technical assistance are essential support for implementing watershed and infrastructure projects. The Syracuse University Environmental Finance Center has compiled a list of competitive and non-competitive national, state, and nonprofit funding sources with potential to aid non-agricultural community water projects. Programs marked with an asterisk (*) require application through New York’s Consolidated Funding Application (CFA). The CFA is a single application that allows applicants to be considered for multiple sources of funding. Interested community members and officials can attend a CFA Workshop through the Central New York Regional Economic Development Council: <https://regionalcouncils.ny.gov/central-new-york>

Readers should note this list is not exhaustive and funding programs are subject to change by the administrating agencies. Check websites for the latest program information.

Table Color Key:

Federal Funding	State Funding	Partnership Resources
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Table Acronyms:

CFA	Consolidated Funding Application	NFWF	National Fish and Wildlife Foundation
CWSRF	Clean Water State Revolving Fund	SWCD	Soil and Water Conservation District
DEC	Department of Environmental Conservation	USC	Upper Susquehanna Coalition
EFC	Environmental Facilities Corporation	USDA-RD	United States Department of Agriculture, Rural Development
MS4s	Municipal Separate Storm Sewer Systems		

NYS TREES FOR TRIBUTARIES PROGRAM SEEKING PARTICIPATING LANDOWNERS

Article by: Lydia Brinkley, Upper Susquehanna Coalition Buffer Coordinator

Do you have a stream on your property? Does it have woody plants growing next to it or signs of erosion? In an article by Andrea Armstrong and Richard Stedman (2020), through a study that took place in Upstate New York, landowners did not perceive the conservation of headwater streams as having influence downstream. Here in the headwaters to the Chesapeake Bay, small actions like planting woody plants near ephemeral, or intermittent, streams go a long way.

Adding woody vegetation within riparian, or stream-side, areas help to reduce erosion, nutrient pollution, and water temperature. Lowering the water temperature increases the amount of oxygen in the water. That, along with adding habitat complexity in the form of trees and shrubs will attract new wildlife to this area.

Whether you have a stream that runs all year long, or

an ephemeral one, your local Soil and Water Conservation Districts within the Kettle Lakes Watershed (Onondaga and Cortland Counties) can help you through the Trees for Tributaries Program. Districts provide support for planning and planting your Trees for Tributaries Project.

To be eligible for the program, your property needs to have a water course on or adjacent to it, you need to be within the Upper Susquehanna River Basin (the Kettle Lakes Watershed is!), and you need to be willing to have the local SWCD return to check on the condition of the plants. Interested landowners should contact:

Onondaga County SWCD, (315) 457-0325
Teresa Link, tlink@ocswcd.org or,

Cortland County SWCD, (607) 756-5991
Stacy Russell, stacy.russell@cortlandswcd.org

FOR THE KETTLE LAKES

Name	Source	Description	Eligible Applicants	Website
Water and Waste Disposal Loan & Grant Program in New York	USDA-RD	Provides funding for projects involving drinking water systems, sanitary sewage disposal, solid waste disposal, and storm water drainage to households and businesses in eligible rural areas and towns of 10,000 or less.	Most state and local governments, nonprofits	https://www.rd.usda.gov/ny
Chesapeake Bay Stewardship Fund – Small Watershed Grants	NFWF	Promote community-based efforts to implement conservation strategies to protect and restore the Chesapeake Bay and its tributary rivers and streams.	Local governments, municipalities, Indian tribes, K-12 Educational Institutions	https://www.nfwf.org/chesapeake/
Non-Agricultural Nonpoint Source Planning Grant*	NYS DEC	Funds planning reports for nonpoint source water quality improvement projects such as green infrastructure retrofits, beach restoration, culvert repair, streambank stabilization, and nature-based shoreline projects.	NYS municipalities and Soil and Water Conservation Districts	https://www.dec.ny.gov/pubs/116725.html
Water Quality Improvement Project Program*	NYS DEC	Reimburses projects that directly address documented water quality impairments or protect a drinking water source. Eligible projects include wastewater treatment improvement, non-agricultural nonpoint source abatement/control, land acquisition for source water protection, salt storage, aquatic connectivity restoration, and MS4s.	Municipalities, MS4s, SWCDs, and nonprofits	https://www.dec.ny.gov/pubs/4774.html
Wastewater Infrastructure Engineering Planning Grant Program*	NYS DEC / EFC	Helps pay for the initial planning of eligible Clean Water State Revolving Fund (CWSRF) water quality wastewater projects. Successful applicants will use the grant to finance engineering and planning services to produce an engineering report.	Municipalities, see website for median household income requirements	https://www.dec.ny.gov/pubs/81196.html https://www.efc.ny.gov/EPG
Green Innovation Grant Program*	NYS EFC	Provides funding for green infrastructure practices such as riparian buffers, floodplains, and/or wetlands, stream daylighting, and more. Projects that spur innovative approaches to stormwater management are favored.	Municipalities, state agencies, SWCDs, Private entities	https://www.efc.ny.gov/GIGP
Trees for Tributaries Coordination and Riparian Buffer Technical Assistance	USC	USC coordinates the NYS DEC Trees for Tributaries Program as part of its comprehensive riparian buffer program in the Upper Susquehanna River watershed; the state provides plant stock and materials to reforest tributaries.	USC member SWCDs	www.u-s-c.org/T4T
Stream Corridor Assessment and Rehabilitation Technical Assistance	USC	USC provides designs and project plans for specific stream sites in the Upper Susquehanna River watershed to re-establish stable channel conditions and natural stream functions. Technical assistance delivered through requests by USC members for municipalities and landowners.	USC member SWCDs	www.u-s-c.org/Streamteam
Wetland Restoration and Technical Assistance	USC	The USC Wetlands Program is committed to increasing wetland restoration and preservation in the headwaters of the Chesapeake Bay. Program funds are available for site design and construction on a competitive basis.	USC Member SWCDs, Individual Landowners	www.u-s-c.org/Wetlands

WINTER MANURE SPREADING IN NEW YORK

Article by: Matt Kazmierski, NYS Department of Environmental Conservation, Environmental Program Specialist II

Recycling manure improves soil health and provides needed nutrients for growing crops. There are limited times when manure can be applied; many fields planted with crops are inaccessible during the summer and weather-related conditions can make timing manure applications to avoid manure runoff a challenge at any time of the year. Saving all the manure for a small window of spring manure applications can present problems if the weather doesn't cooperate. There are certain field attributes and weather conditions that can make winter applications on some farms a good option. Allowing farms to take advantage of windows of opportunity during the winter months can help avoid spreading during wet soil conditions and spring rains.

In New York State (NYS), farms that stable or confine 300 or more mature dairy cattle require a Concentrated Animal Feeding Operation (CAFO) Permit issued by the NYS Department of Environmental Conservation (DEC). CAFO Permits are also required for farms that exceed animal thresholds for swine, chicken, turkeys, horses, sheep and even ducks, but dairy cattle operations account for the vast majority of CAFOs in NYS. The CAFO Permit has always had a requirement to develop and implement a Comprehensive Nutrient Management Plan (CNMP) that dictates manure application requirements for permitted farms. However, it is recognized that additional precautions are needed for winter manure applications. During the last CAFO Permit modification in 2017, the permit was updated to include additional requirements and prohibitions for winter manure applications on CAFOs. This modification required many CAFOs to increase their manure storage capacity to avoid spreading during prohibited conditions to comply with the new permit requirements.

CAFO Permit Winter Spreading Requirements

The CAFO Permit defines winter conditions when manure applications must meet additional spreading requirements and defines conditions when the application of manure is prohibited.

The CAFO Permit defines *winter spreading conditions* as soil that is frozen 4 or more inches, covered by 4 or more inches of snow, or encumbered by significant surface icing. Permit section III.A.c requires CAFOs that apply manure during "winter spreading conditions" to:

1. Develop a facility-specific winter spreading plan that incorporates Cornell University guidance entitled, "Revised Winter and Manure Spreading Guidelines to Reduce Water Contamination Risk" (December 2015). The winter spreading plan must be included in the farm's CNMP, which is enforceable under the terms of the CAFO Permit. Cornell's guidance can be found here: www.u-s-c.org/WinterSpreading
2. Update the facility CNMP to identify specific low-risk fields to be used for winter weather applications.

The Cornell Guidance referenced above includes a suite of best management practices (BMPs) that can be used to reduce the risk of runoff from manure applications. BMPs include evaluating soil moisture, frost depth, snow cover, ground cover, slope, proximity to surface water or concentrated flows, drain tiles, weather forecast, manure consistency, application method, and rate of application. The stated purpose of the Cornell Guidance is to answer the question, "*given the current soil and ground conditions and the weather forecast, should manure be applied to all or part of the field?*" The CAFO Planner must evaluate all fields where manure will be applied during winter conditions and include practices from the guidance in the farm's CNMP.

DEC staff often get asked if a CAFO is required to "turn in" their manure and incorporate it into the soil. In many cases this is a good practice and its use must be evaluated by the facility when developing their CNMP, but there is not a blanket mandatory requirement to incorporate manure in New York State. However, once a practice is included in the facility CNMP it is enforceable under the terms of the CAFO Permit.

CAFO Permit Manure Spreading Prohibition

The CAFO Permit prohibits manure and process wastewater applications on fluid or frozen saturated ground. This is defined as ground that has standing water or is frozen to the extent that it cannot be penetrated with an agricultural farm implement such as a plow. During compliance inspections, DEC staff use a heavy metal probe called a spud bar to determine how frozen the ground is and if spreading has been completed in compliance with the CAFO Permit.

(continued on page 5)

KETTLE LAKES SHARING SESSIONS ONLINE

Article by: Tarki L Heath, Secretary/Treasurer, Song Lake Property Owners Association and President C-OFOKLA and NYSFOLA

The Cortland-Onondaga Federation of Kettle Lake Associations worked tirelessly over the winter to find ways to connect with our watershed neighbors. Using online media, each of our member lakes presented over a series of months. The presentations were fun and informative, allowing each lake to showcase their unique characteristics and concerns.

Beginning in February, Tully Lake highlighted the shorescaping projects they have worked on collaboratively for over three years, with the Upper Susquehanna Coalition, sponsored by C-OFOKLA and funded through Onondaga County Soil and Water Conservation District. In March, Crooked Lake presented the history of their lake and described their program to scare away the geese. Using data from the Citizens Statewide Lake Assessment Program (CSLAP), they were able to track a decrease in phosphorous in the lake after their goose disruption program. It is hoped that this will assist in their overall watershed plans to limit weed growth. Song Lake's presentation in April was a photographic history of the lake, its flora and fauna, along with information on their efforts to manage the lake with its relatively new infestation of zebra mussels. Using CSLAP data, they were

able to track the increase in temperature and water clarity that is causing a proliferation of plants. The final May Sharing Session was provided by Little York Lake providing information on their Beat the Weeds program for managing invasive species in its lake.

The Kettle Lake Associations (C-OFOKLA) is a coalition of kettle lake associations in Cortland and Onondaga counties. Members include Crooked Lake Homeowners Association, Song Lake Property Owners Association, Tully Lake Property Owners Association, and Little York Lake Preservation Society. To find out more about the Citizens Statewide Lake Assessment Program (CSLAP), go to the New York State Federation of Lake Associations website at www.NYSFOLA.org.

Each session is approximately 30 minutes long with some Q&A recorded at the end. The links to each are included below.

<https://youtu.be/8uUEVaJ2a8k> Tully Lake-Feb.
<https://youtu.be/f6mox46eonA> Crooked Lake-Mar.
<https://youtu.be/Cm4rdDj3Gik> Song Lake-Apr.
<https://youtu.be/NCq47XtF-Vk> Little York Lake-May

.... Winter Manure Spreading continued

Manure spreading in NYS is allowed during winter conditions on CAFOs if it meets the criteria listed above. Implementation of these requirements goes a long way in reducing the risk of manure runoff. However, if the application results in runoff that causes a water quality violation it would be considered a violation of the CAFO Permit and NYS Environmental Conservation Law. Water Quality regulations apply to all farms in NYS, not just CAFO permitted farms. DEC performs routine compliance inspections on CAFO farms and responds to all citizen complaints regarding water quality concerns on farms.

If you have questions or need to report a water quality concern, contact your DEC Regional Office. The DEC Region 7 Office covers nine counties, including Onondaga and Cortland, and can be reached at 315-426-7400 during regular business hours from 8:30 - 4:45. Off-hour calls should be directed to DEC's Division of Law Enforcement at 1-877-457-5680 or R7.Dispatch@dec.ny.gov.

Photo provided by Amber Radatz



Case Study

TULLY KETTLE LAKES RIPARIAN BUFFER PLANTING UPDATE

Article by: Teresa Link, Onondaga County SWCD Conservation District Technician

In 2017, Princeton Hydro wrote a Watershed Implementation Plan (WIP) for Tully Lake which summarized the watershed and provided suggestions of projects to improve water quality. The Onondaga County Soil and Water Conservation District (the district) has been partnering with Cortland-Onondaga Federation of Kettle Lake Associations (C-OFOKLA) and the Tully Lake Property Owners Association (TLPOA) since 2018 to implement shoreline buffers, also referred to as shorescaping, which were recommended in the WIP. These shoreline buffers aim to improve water quality by slowing down and filtering water before it reaches the water body. In 2021, the District and its partners decided to implement a different type of buffer, a riparian buffer on to Tully Lake. The buffer was installed in April and consisted of 1,200 live stakes of streamco willow, pussy willow, red-osier dogwood, silky dogwood, buttonbush, and elderberry. Onondaga Earth Corps planted the live stakes with help from the District's intern, Peter Rao.

Before shoreline buffer



After live stake installation



UPPER SUSQUEHANNA COALITION RECEIVES DEC ENVIRONMENTAL EXCELLENCE AWARD

Article by: Lydia Brinkley, Upper Susquehanna Coalition Buffer Coordinator

On April 2, 2021, the New York State Department of Environmental Conservation (DEC) announced the Upper Susquehanna Coalition (USC) as the recipient of the 17th Annual Environmental Excellence Award. The award recognizes the USC for developing the USC Water Quality Program through which Best Management Practices are implemented to reduce and prevent pollution in local waterways throughout the Chesapeake Bay Watershed within 18 counties in NY and 4 in PA.

The USC Water Quality Program was developed in response to low enrollment of landowners into federal programs for the implementation of riparian buffers, wetlands, and grazing. According to the New York State Chesapeake Bay Watershed Implementation Plan, these practices have to be implemented in great numbers throughout the watershed to meet nutrient and sediment reduction goals. In response

to this situation, the USC developed a program to provide technical assistance and funding to increase the rate at which these practices are implemented. The program has been funded by grant funds from the National Fish and Wildlife Foundation (NFWF), United States Forest Service (USFS), and the NYS Department of Agriculture and Markets. Currently, multiple funding sources continue to fund the program.

This program is available now with applications for funding submitted by local Soil and Water Conservation Districts. If you have a natural resource concern on your property, or on land you operate, please contact your local SWCD for assistance! Projects include riparian restoration, wetland creation, and grazing systems with components such as stream crossings, fence, and off stream water.

Picture: Tioga County, NY farm with constructed wetlands (circled in blue below), tree and shrub planting in riparian area, and fence for grazing animals (both circled in yellow below). Photo courtesy of Tioga County SWCD.



SIX LAKES SURVEYED IN 2020 FOR AQUATIC INVASIVE SPECIES

Article by: Kathy McGrath, Cortland SWCD Water Quality Specialist

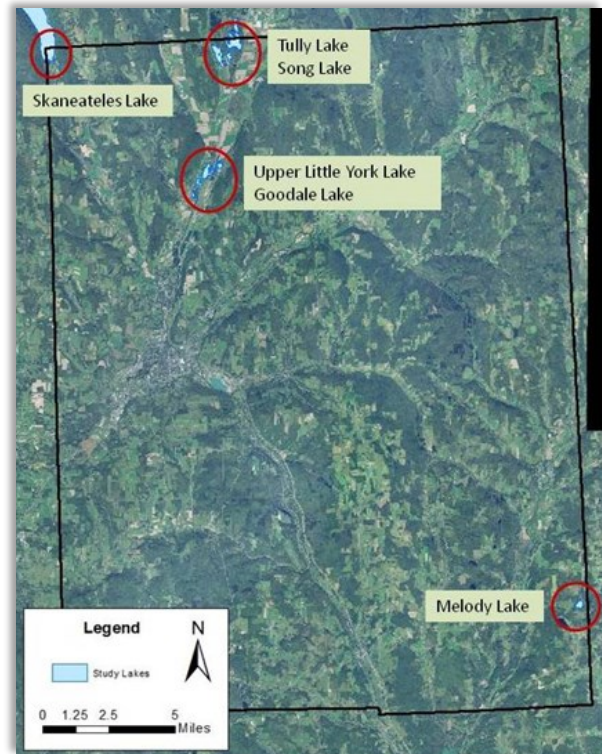
The Cortland County Soil and Water Conservation District (SWCD) surveyed six lakes in Cortland County for aquatic invasive plant species (AIS) in 2020. The lakes were Song, Upper Little York, Goodale, Melody, and the Cortland County portions of Tully and Skaneateles. Several AIS are well established in Cortland County lakes and numerous other AIS such as hydrilla, water chestnut and brittle naiad are known to occur in nearby lakes. Lake surveying is critical, because early detection and mapping of novel AIS allows for potential eradication. In addition, mapping known species provides essential information for management and treatment of these species.

Lake boat owners volunteered their time and boats to facilitate sampling. In addition to the use of motor boats in deeper water, points in shallower water were sampled by kayak. Locations at depths greater than 20 feet were not sampled as aquatic plants typically do not occur at these depths.

Sampling was accomplished using the rake toss method. A rake toss is as it sounds – a grass rake with a rope attached, thrown into the water and then retrieved. The rake collects plant material as it is dragged through the water. All AIS on the rake are then identified. Sampling was conducted on a 50m x 50m point grid when cell service was available, and on evenly spaced transects when it was not, with two tosses per location. In addition to rake tosses, purple loosestrife was visually observed and recorded along the shoreline. Approximately 500 acres of lake surface area were surveyed across the six lakes. Six aquatic invasive plant species (see table below) and roughly 20 native species were observed.

Two species were found that were not previously recorded. One small specimen of brittle naiad was found at one location in Song Lake. This species has not previously been identified in any Cortland County lake. In addition, starry stonewort was identified at multiple sampling points in the southern end of Skaneateles Lake. Confirmed occurrence of this species has not previously been reported.

Two species were *not* found in Cortland County SWCD surveys that have been observed previously. *(continued on page 9)*



Six lakes were sampled by the Cortland County SWCD for aquatic invasive species in 2020.

Aquatic Invasive Species	Lake					
	Song	Tully	Goodale	ULYL ¹	Skan ¹	Melody
Starry stonewort <i>Nitellopsis obtusa</i>		X	X	X	X	
Eurasian watermilofoil <i>Myriophyllum spicatum</i>	2	X	X	X	X	2
Variable leaf milfoil <i>Myriophyllum heterophyllum</i>			X	X		
Curly leaf pondweed <i>Potamogeton crispus</i>			X	2	X	
Brittle naiad <i>Najas minor</i>	X					
Purple loosestrife <i>Lythrum salicaria</i>	X	X	X	X		

¹ ULYL = Upper Little York Lake, Skan = Skaneateles Lake

² Species believed to occur from past surveys but not collected during this sampling effort

Bold Xs denote newly identified species

AIS EFFORTS: LITTLE YORK LAKE BEAT THE WEEDS 2021

Article by: Don Fisher, Treasurer, Little York Lake Preservation Society

If you use Little York Lake for fishing, kayaking or just to sit and enjoy, you have noticed a dramatic change in the past two years. The dense mats of vegetation that clogged the boat launch and fishing dock have largely disappeared thanks to our ongoing Beat the Weeds program.

Little York Lake Preservation Society (LYLPS) plans to continue its treatment program this summer focusing on:

- ◆ Pushing milfoil back so that it can be controlled completely in recreational areas
- ◆ Expanding the treatment of starry stonewort (the dense, green mat just below the surface)
- ◆ Testing a treatment of some curly-leaf pondweed in high traffic areas

This year's AIS treatment dates are as follows: pondweed in late May, milfoil in mid-June and starry stonewort in mid-July. The treatments will have minor water use restrictions and all affected riparian

owners will be notified by mail prior to the actual treatment. Additionally, the lake shoreline will be posted with water use restrictions.

In addition to the treatment, a boat decontamination station was installed last summer at the entrance to the park. We hope to see increasing usage of it to keep not only Little York Lake but other lakes in the region safe from invasive species.

LYLPS is also working on developing a macrophyte monitoring program to follow up on the FL-PRISM funded macrophyte survey conducted by Cortland County SWCD last year. It is also developing a HABS monitoring and alert program.

We encourage everyone who uses the lake to get involved and show your support for our efforts at improving and maintaining the lake. Read our full work plan at: <http://www.littleyorklake.com/2021/01/18/2021-work-plan-overview>.

... Six Lakes Surveyed continued

Eurasian watermilfoil was previously documented in Melody Lake but was not observed in this study. This lake has a significant population of grass carp that appear to be suppressing *all* aquatic vegetation. Eurasian watermilfoil was also previously reported in Song Lake but may have been a misidentification since native milfoil is present in Song Lake and the milfoils can be difficult to identify. Curly leaf pondweed was not observed in Upper Little York Lake (ULYL) in the 2020 survey but has been identified there in the past. This species grows best under cooler conditions and may have senesced by the time of our sampling; it was since observed in spring 2021 in ULYL by lake residents. Not observing a species in a lake where an AIS has previously been observed does not mean that it is gone. It is extremely difficult to eradicate an AIS once it is established. Survey sampling provides observations at representative portions of the full surface area of a lake, and with species growing at different times, specific AIS may not be active at the time of sampling. For these reasons, AIS do get missed.

Management recommendations by the SWCD based

on our survey findings included:

- ◆ Release a biocontrol (beetle/weevil) for purple loosestrife on Goodale Lake,
- ◆ Conduct additional surveys and evaluate control options for brittle naiad in Song Lake,
- ◆ Consider herbicide treatment methods used to control Eurasian watermilfoil and starry stonewort in 2019 and 2020 on Upper Little York Lake for application to other lakes in the County,
- ◆ Survey the remainder of Skaneateles Lake outside Cortland County for starry stonewort and consider management options,
- ◆ Continue to survey these lakes to assess treatment efficacy and for early detection of novel species.

The final report for this project, including maps of each lake, was prepared by the SWCD and provided to each lake association for their management use. This report and maps are available upon request from the Cortland County SWCD. This survey was funded by the Environmental Protection Fund as administered by the NYSDEC and the Finger Lakes PRISM.

AIS EFFORTS: WEED MANAGEMENT ON SONG LAKE

Article by: Tarki L Heath, Secretary/Treasurer, Song Lake Property Owners Association and President C-OFOKLA and NYSFOLA

Over the years, Song Lake has been unique in the number of native plant species maintained. These include native Northern watermilfoil, coontail, spatterdock, water star grass, white water crowfoot, eel grass and lake cress, a NYS protected species. In 2020, the Cortland County SWCD conducted an aquatic species plant survey on all the county lakes. Although they found these same species, they also found very small floating fragments of brittle naiad, which is invasive. We have yet to find rooted plants but are looking carefully as the season progresses.

As with most regions in NYS, purple loosestrife is present around the lake perimeter. This invasive was identified in 2012 as having a negative impact on wetland and riparian areas. In 2014 the lake association obtained permits through the USDA to release biological controls (weevils) at key points around the lake. These weevils have not eliminated the plant but have successfully maintained control since they were introduced.

Song Lake also has a history of stocking triploid grass carp. These large, sterile, herbivorous fish were stocked from 1995 through 2005. Results from this stocking were a bit contradictory. Although the carp were successful at reducing plant growth, the

result was an unbalanced ecosystem.

The phosphorus in the sediments of the lake continued to load internally, so nutrients remained available for abundant algae growth. Overstocking was most likely the cause for such degradation (see diagram below). Song Lake began to experience toxic algal blooms in 2009. The correlation between stocking triploid grass carp and Harmful Algal Blooms (HABs) is still being researched. We are looking to stock a very conservative number of carp; however, to date, those permits have been denied.

Just as the lake was rebounding from the carp, and we were beginning to experience fewer HABs with the return of the native plants, Song Lake was hit with an infestation of zebra mussels. These mussels have caused increased clarity in the lake providing solar radiation to depths not previously experienced. With sunlight available for photosynthesis at almost all lake levels, the proliferation of plants has returned – with a vengeance.

We are working with Cortland County SWCD to retain the services of the mechanical harvester for 2021. In the fall of 2020, we did a partial harvesting

(continued on page 11)

EFFECT OF GRASS CARP ON *EUTROPHIC LAKES



Just as phosphorus and nitrogen are added to soil to enhance plant growth, when they flow into our lake, they promote the growth of weeds and algae. Getting rid of the weeds will only increase the opportunity for the algae to grow. Lake balance is dependent on limiting the phosphorus and/or nitrogen going in.

* Eutrophic: The state of a lake that has an over abundance of nutrients (phosphorus and/ or nitrogen) that support a dense growth of algae and macrophytes (rooted plants).

** Anoxic: When these dense algae decay, they deplete the waters of oxygen causing fish to suffocate.

Adapted from a diagram by Professor Kimberly Schulz



AIS EFFORTS: WEED MANAGEMENT ON TULLY LAKE

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

Tully Lake, like most other freshwater lakes in our nation, has been overwhelmed by Eurasian water milfoil, starry stonewort, *Chara* and other native and invasive weeds to the point where both recreation and habitats have been negatively impacted. Decomposition of massive amounts of dead plant life has led to excessive sedimentation, decreasing circulation which affects water quality. This potentially leads to increasing nutrient loads and documented harmful algal blooms, with Tully Lake having several microcystic and anatoxic blooms within the last five years. Many weed abatement strategies aimed at keeping weeds in check have been attempted, although success has been limited. In addition to using hand raking at personal property shorelines, Tully Lake has been using a mechanical weed harvester since 1997. Initially this project was funded solely using limited lake association dues. Over time, the need for additional financial support became necessary with much needed financial support coming from both Onondaga and Cortland SWCDs. Gary LeRoux, owner of CNY Aquatic Harvesting states, "There is not as much milfoil as there used to be, but now I'm

cutting starry stonewort at the south end of the lake near the public launch." Beginning in 2019, Tully Lake began a benthic mat program. For the last two years more than 40 mats have been installed annually along personal waterfronts. As we move forward, Tully Lake is anxiously observing outcomes of other lakes in their usage of target specific algicides as a potential strategy in their arsenal against aquatic invasive species.

Picture: Upper Tully Lake (Turtle Pond) photo by Colleen Zawadzki



... *Song Lake continued*

of the lake (at the south end) and are watching to see if there is any reduction in weeds in that area. Anecdotally, this is said to work, but again, there is no research to confirm this.

The use of benthic mats has had mixed reactions. Some lake shore owners are happy with the way they reduce weed growth around their docks, others find them to be a nuisance. The issue with the mats is that we need to be mindful of the time of year they are installed so that fish spawning is not disturbed.

There simply are not that many tools to work with, so manually raking the area around our shorelines remains the best, albeit the most labor intensive and time consuming solution. We are working our individual shorelines and hauling the weeds to a local organic farm in Preble, and another in Truxton.

As other lakes look to the use of targeted herbicides, Song Lake will be carefully observing the outcomes, and plans are in the works to begin the application process for 2022.

CROOKED LAKE EFFORTS TO PREVENT AND ADDRESS AQUATIC INVASIVE SPECIES

Article by: Seth Aldrich, President, Crooked Lake Homeowners Association

Crooked Lake has the great fortune of having a community that respects Homeowner Association bylaws that include no gas powered watercraft on the lake. That, combined with no real public access to the lake, means there are fewer boats that would come into Crooked Lake from other water bodies. With approximately 60 homes around the lake however, there is still plenty of opportunity for aquatic invasive species to hop aboard watercraft and enter Crooked Lake. The Crooked Lake Homeowners Association (CLHOA) takes important steps to monitor and maintain water quality including prevention of aquatic invasive species.

Inform

At our annual meeting as well as periodic emails to the Crooked Lake community, we remind homeowners to be cautious about watercraft from other water bodies coming into Crooked Lake. Information about cleaning boats is provided to all homeowners along with our system to report harmful algae blooms. We provide information about shorescaping and scream escaping (noise avoidance) to residents. We provide information about data obtained through our CSLAP water monitoring as well as other sources (e.g. SUNY ESF) so that homeowners are aware of threats to Crooked Lake. We provide welcome baskets to new neighbors that include snacks, a bottle of wine and information about ways that we protect the lake.

Monitor

A pass system has been developed so that homes on a Crooked Lake road with a single access point are able to monitor who comes in and out of the lake preventing entry of 'bad actors' who may introduce invasive species. Crooked Lake has boat stickers that are given to homeowners who promise to follow protections written into our bylaws.

SUNY ESF has conducted sampling that has informed us that we have no zebra mussels. A survey by SUNY Oneonta has provided information about invasive species in Crooked Lake (see table below). We are concerned that we may be having a significant increase in pondweed and variable leaf milfoil or coontail. Proper identification will help us understand threats and ways to address them. Regular underwater

observation during summer months suggests that various species of aquatic vegetation come and go over the years with little explanation.

Collaborate

Crooked Lake collaborates with organizations such as Cortland-Onondaga Federation of Kettle Lakes Association (C-OFOKLA), NYSFOLA, Onondaga SWCD, Upper Susquehanna Coalition, SUNY ESF, and SUNY Oneonta who assist in gathering data and providing important information for best practices. We take lessons from published studies, as well as other local lakes about their efforts to improve water quality and control invasive species.

Prevent

Crooked Lake has taken steps to minimize nutrient loading into the lake that feed weeds including invasive species. Subsequent to geese harassment in 2011, there has a trend of decreasing phosphorus in surface and deep waters in the lake. Crooked Lake, in collaboration with Tully Lake and the Town of Tully, worked to pass a town law preventing keyholing (access to multiple homes through one access point) which further minimizes threats to Crooked Lake.

List of common and scientific names of plant species found in Crooked Lake

Common name	Scientific name	Crooked Lake (2018)
Bladderwort	<i>Utricularia</i> spp.	X
Coontail	<i>Ceratophyllum demersum</i>	X
Curly leaf pondweed	<i>Potamogeton crispus</i>	X
Eel grass	<i>Vallisneria americana</i>	X
Northern watermilfoil	<i>Myriophyllum sibiricum</i>	X
Pondweeds	<i>Potamogeton</i> spp.	X
Slender naiad	<i>Najas flexilis</i>	X
Spatterdock	<i>Nuphar variegata</i>	X
Water shield	<i>Brasenia schreberi</i>	X
Waterweed	<i>Elodea canadensis</i>	X
White water crowfoot	<i>Ranunculus aquatilis</i>	X
White water lily	<i>Nyphea odorata</i>	X
Muskgrass ¹	<i>Chara</i> spp.	X

¹ Macro-algae

Bold common names denote AIS

RESTORATION HIGHLIGHT

WETLANDS: BENEFITING WATERSHEDS BIG AND SMALL

Article by: Melissa Yearick, Upper Susquehanna Coalition, Wetlands Coordinator

Wetlands, those transition areas between deep water and dry land, are important parts of our landscape. They come in many forms, and occur throughout our watershed, providing a variety of benefits.

Wetland benefits range, from absorbing flooding river flows, to holding rain in headwater areas, decreasing flooding downstream; from providing habitat to animals and recreational opportunities to people, to slowly releasing water into the ground, maintaining groundwater levels for streams during low flow periods; from cleaning surface water, to fixing carbon and mitigating climate change, and many more.

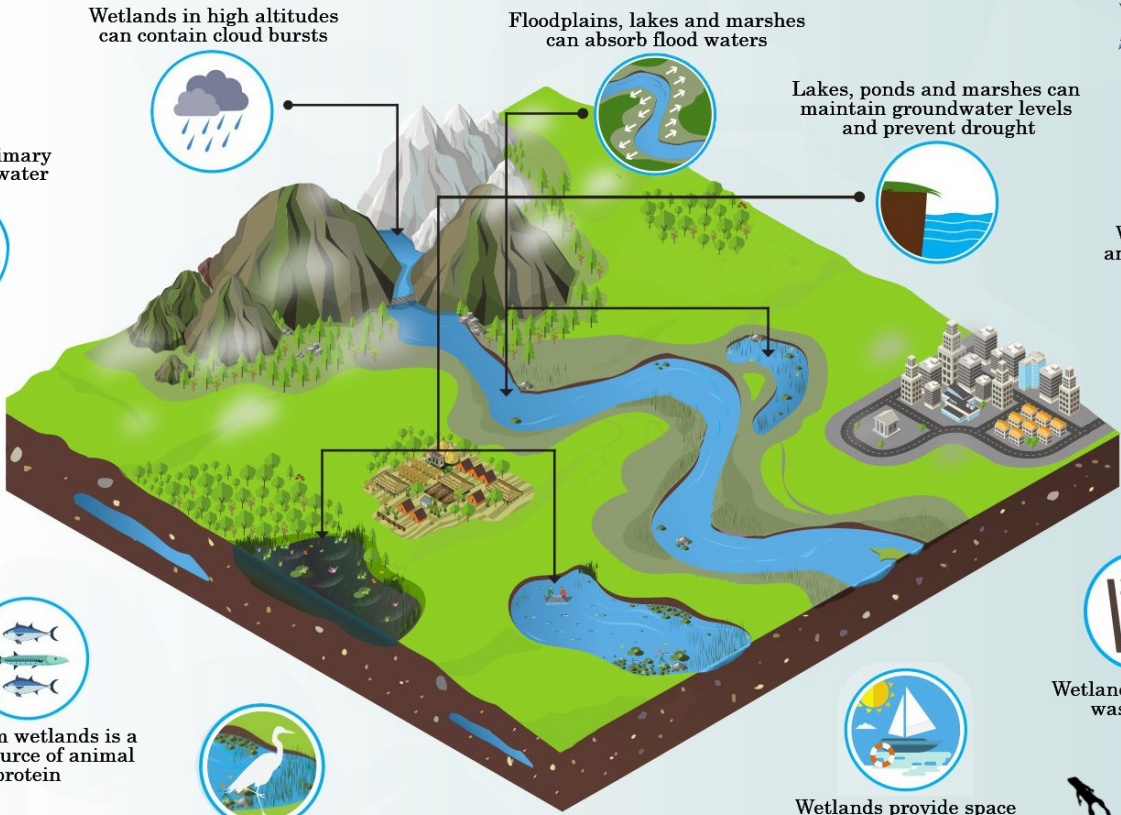
Unfortunately, wetlands often occur in areas that appear suitable for other landuses, areas along rivers and in flats where development is desirable. This conflict between wetlands and other uses has resulted in the removal of thousands of acres of wetlands from our watershed, resulting in the loss of all of the benefits those wetlands provided.

Researchers believe New York has lost more than 60% of our wetlands since the 1800s.

The Upper Susquehanna Coalition's Wetland Program is actively searching for opportunities to restore wetlands of all shapes and sizes, to return those benefits and to improve water quality, both locally and downstream in the Chesapeake Bay.

Wetlands can be restored through the plugging of drainage ditches, the removal of drain tile line, the construction of low berms, or the excavation of potholes, all of which serve to keep water on the land longer, slowing the pace by which it reaches our streams and rivers.

The highest priority wetland restoration sites are large, flat fields, with ditching throughout and heavy soils. But wetlands can be restored in many areas. If you are interested in being a wetland steward, and in having wetlands restored on your property contact our team at wetlandteam@u-s-c.org or visit our website for more information www.u-s-c.org/Wetlands.



Wetlands in high altitudes can contain cloud bursts

Floodplains, lakes and marshes can absorb flood waters

Lakes, ponds and marshes can maintain groundwater levels and prevent drought

Wetlands are primary sources of freshwater

Wetlands fix carbon and help in mitigating climate change

Several wetland plants are harvested for food, fuel and fibre

Fish from wetlands is a major source of animal protein

Wetlands are key biodiversity habitats

Wetlands provide space for recreation and cultural activities

Wetlands help filter wastewater

Diagram adapted from Wetlands International *Wetlands Resilience* graphic



KEYHOLE DEVELOPMENT AND THE KETTLE LAKES

Article by: Meredith Perreault, Program Manager at Center for SU Environmental Finance Center

Keyhole, or funnel development, occurs when a lakefront property is used to provide direct access to a nearby lake from a larger development site. This process allows for increased foot traffic through a small corridor as a greater number of users access the lake at a location separate from a public access point.

Due to the possibility of overcrowding from increased foot and boat traffic, keyhole development, if left unregulated, has the potential to create a plethora of problems related to lake water quality and land use conflict. In the case of water quality, unregulated keyhole development can lead to shoreline erosion, resuspension of bottom sediments, fish and wildlife habitat destruction, and the decline of water quality more generally. Due to the potential proximity to larger lakefront developments, keyhole developments can also lead to increased storm water runoff entering the lake.

Given the relatively small size of the Kettle Lakes and the absence of natural outlets, the lakes are already susceptible to increased pollution and nutrient accumulation. This, in combination with unregulated keyhole development, would exacerbate existing water quality concerns. Additionally, for their small size, many of the Kettle Lakes have highly developed shorelines. With the addition of keyhole developments, this would increase the potential for storm water runoff and diminished water quality.

If you or your community is concerned with the potential impact of keyhole development, you should consider approaching your local government or planning board to discuss appropriate responses. Local governments have the authority to establish keyhole development regulation through the adoption of local

ordinances. These have the potential to reduce possible negative impacts from keyhole development while preserving lake water quality and protecting public health and safety. In 2010, for example, the town of Preble passed a Keyhole Development Ordinance protecting Song Lake, Little York Lake and the south end of Tully Lake. Prior to its passage, a group of Song Lake property owners addressed the Town and County Planning Boards, presenting information on the negative impacts that exceeding “carrying capacity” would have on the ecology and economies of the lakes and region. The association was able to demonstrate the loss of revenue from these lakes due to diminishing recreational activity and quality of life, signaling a potential negative impact on the town’s tax base. Similarly, in 2020, Crooked Lake and Tully Lake property owners provided this information to their town and were able to successfully pass a Keyhole Ordinance there.

The case of Preble illustrates that working with the town and planning boards is key. Ultimately, if local governments and communities work to establish keyhole ordinances, then the risks of keyhole development can be reduced while protecting lake water quality and the health and safety of local residents.

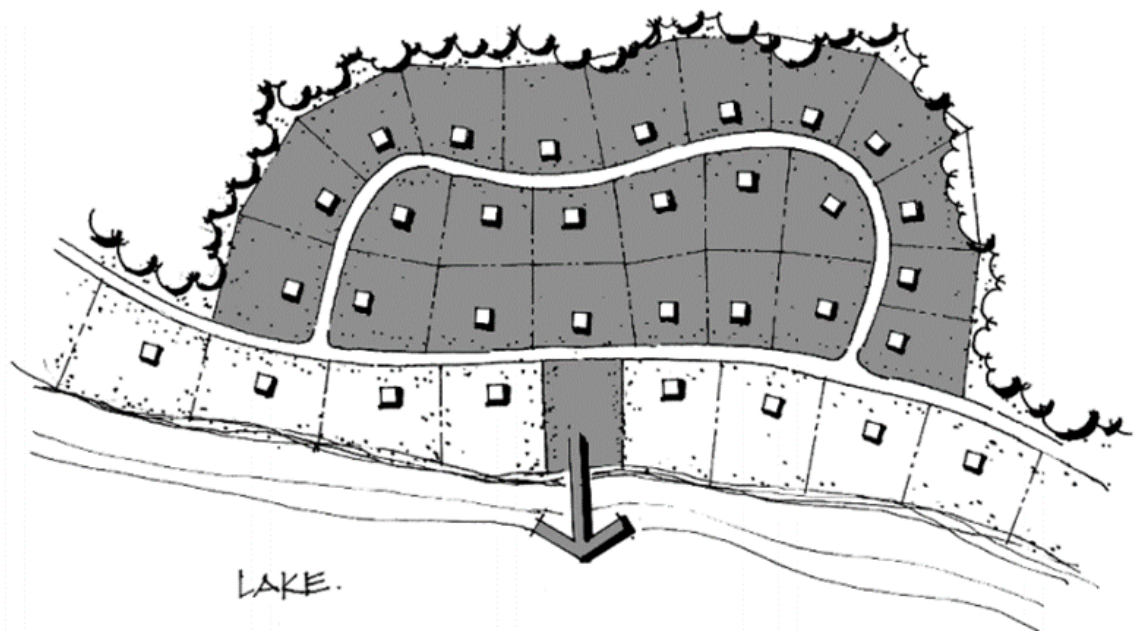

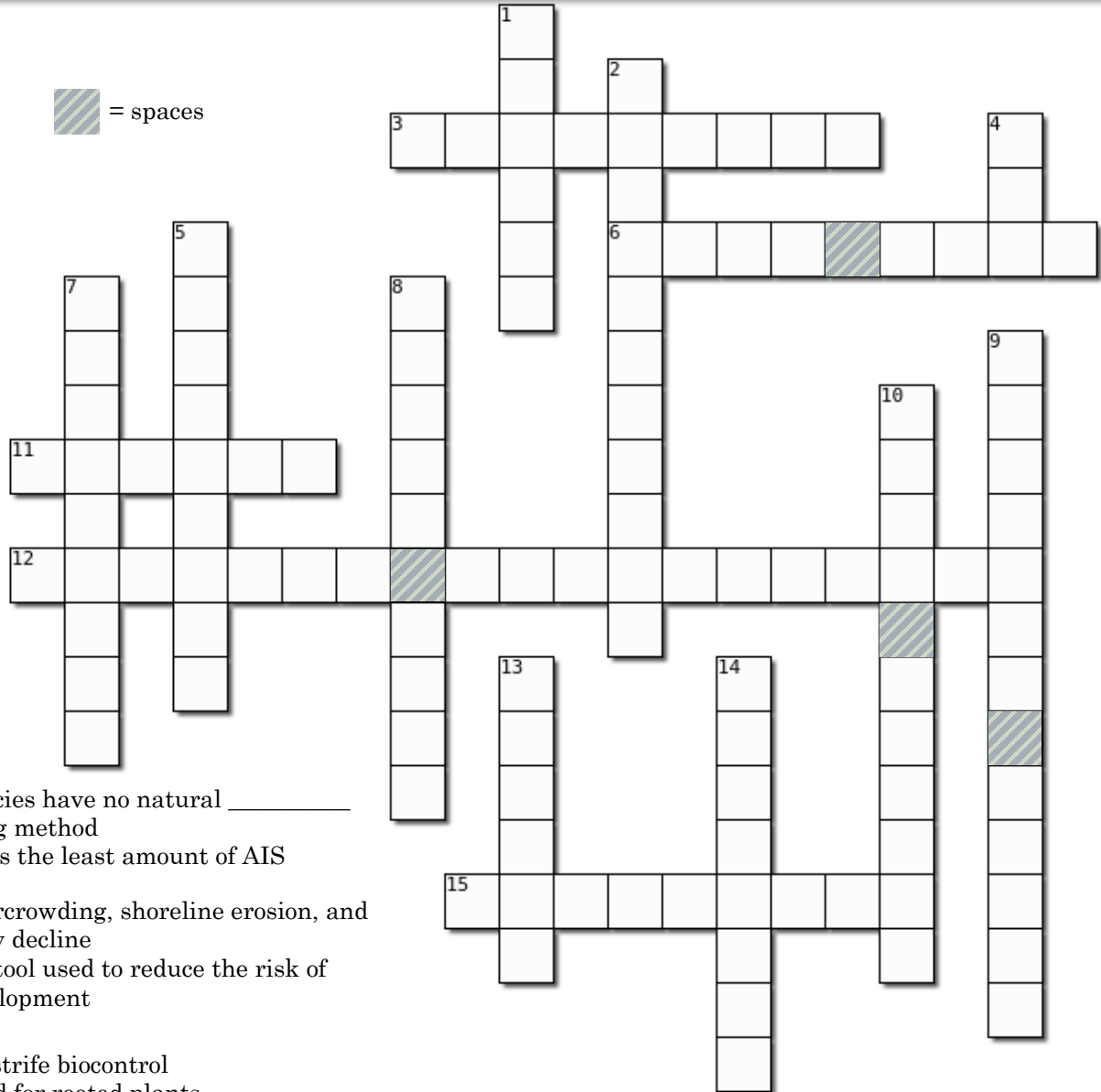


Image sourced from [Little Long Lake Recreational and Environmental Carrying Capacity Study](#), Progressive AE (2005)

KETTLE CROSSWORD

 = spaces



Across

- 3. Invasive species have no natural _____
- 6. AIS sampling method
- 11. Lake that has the least amount of AIS observed
- 12. Leads to overcrowding, shoreline erosion, and water quality decline
- 15. Governance tool used to reduce the risk of keyhole development

Down

- 1. Purple loosestrife biocontrol
- 2. Another word for rooted plants
- 4. Acronym for water-living nonnative organisms
- 5. The state of a lake with an overabundance of nutrients
- 7. Intermittent
- 8. Stocked in Song Lake
- 9. Newly recorded AIS in Song Lake
- 10. Installed along a tributary to the Kettle Lakes
- 13. CAFO permits regulate the spreading of _____
- 14. Decreases downstream flooding

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

Created using the Crossword Maker on TheTeachersCorner.net

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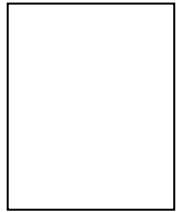
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**Environmental
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Syracuse University



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.