FINGER LAKES PRISM

Partnership for Regional Invasive Species Management

2019-2020 ANNUAL REPORT

HOBART AND WILLIAM SMITH COLLEGES

FINGER LAKES INSTITUTE

STOP THE INVASION • Protect New York From Invasive Species •

Prepared by Hilary R. Mosher,
FL-PRISM Coordinator

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Letter from the Coordinator

Partners,

Peter Drucker, the famous Austrian-born American consultant and author is noted for saying: "the greatest danger in times of turbulence is not the turbulence- it is to act with yesterdays' logic". This past year has seen growth in areas that we did not expect and diminish in areas unprecedented. In March, 2020 we saw cancellations of our biggest events such as Rochester's Gardenscape and countless scheduled presentations and workshops. Yet, as you may see below, the 2019-2020 fiscal year saw huge strides in engaging our stakeholders in a new and intentional way such as creation of resources and materials that are in use by our partners such as the 'Invasive Species Activity Workbook' created in collaboration with Wayne County Soil and Water Conservation District; early detection and rapid response of water chestnut in Honeoye Lake; and the control of Hydrilla in a newly discovered location in Lansing NY.

Invasive species work in the region also included facilitating, managing, and supporting invasive species programming across the region. The education and outreach program touched 112,200 people across the various modes of outreach including tabling, hikes, presentations, workshops, and hands-on events. Field crews were on the land and water to survey, identify, report, and control invasive species in the region.

Some highlights from the Finger Lakes PRISM 2019-2020 fiscal year include:

- **15** workshops with **214** community members engaged on invasive species
- **26** Tabling events with over **107,526** people in attendance
- **36** Presentations conducted that conveyed invasive species programming to **2042** people
- **10** iMapInvasives trainings and 285 confirmed observations
- Watercraft stewards inspected **28,788** boats at **19** launches and engaged **63,679** people
- **53** events held across the region in honor of NYISAW reached **3,456** participants
- Hydrilla survey crew took **7,478** rake tosses across **11 counties** and **16 waterbodies** for high priority aquatic invasive species and even identified a state-listed endangered plant: spiny naiad (*Najas marina)* in Cayuga Lake and is only the third extant record in NYS!
- **24.2** acres of giant hogweed were controlled and **82** acres were surveyed for high priority terrestrial invasives

While New York State went on PAUSE in mid-March, 2020, the Finger Lakes PRISM has been working behind the scenes to offer webinars, engage stakeholders, create new survey and monitoring programs, and look forward to tomorrow's world in a calculated manner as we adapt new logic to a 'new' normal. We empathize with all who have been affected by COVID-19 and wish our stakeholders, partners, and communities a safe, and healthy 2020 season.

In service,
Hilary R. Mosher, Coordinator, Finger Lakes-PRISM

Acknowledgements
We are thankful to our host organization, Hobart and William Smith Colleges, and our New York State (NYS) partners which include the NYS Department of Environmental Conservation (DEC) Invasive Species Coordination Unit, the NYS Invasive Species Council, the NYS Invasive Species Research Institute, the NYS Invasive Species Clearinghouse at Cornell University, and the New York Invasive Species Database known as iMapInvasives.

We are also thankful to our Steering Committee, Agriculture, Aquatic, Education & Outreach, and Terrestrial Working Group members for their dedication, expertise, and commitment to furthering the mission of the Finger Lakes PRISM. A big thank you to our grant collaborators and partners who work tirelessly to survey, identify, report, and control invasive species across the region. There is no 'Partnership' without our partners and we are grateful for your service.

Funding provided by the New York State Environmental Protection Fund administered through the New York State Department of Conservation to the Finger Lakes Institute at Hobart and William Smith Colleges as host to the Finger Lakes Partnership for Regional Invasive Species Management (Finger Lakes PRISM), a collaborative program designed to address the threat of invasive species.

Finger Lakes Partnership for Regional Invasive Species Management

About

The Finger Lakes Partnership for Regional Invasive Species Management (Finger Lakes PRISM) is a collaborative program designed to address the threat of invasive species. Housed within Hobart and William Smith Colleges' Finger Lakes Institute (FLI), the program is one of eight across New York that focuses on managing invasive species, developing detection programs, employing response efforts, providing education programs and outreach, and working with communities. PRISM programs are administered through the New York State Department of Environmental Conservation.

Finger Lakes Institute (FLI) is dedicated to the promotion of environmental research and education about the Finger Lakes and surrounding environments. In collaboration with regional environmental partners and state and local government offices, the Institute fosters environmentally-sound development practices throughout the region, and disseminates accumulated knowledge to the public.

The goals of the FLI are to:

- Advance, coordinate, and disseminate scientific understanding about the Finger Lakes environment;
- Provide interdisciplinary training for the next generation of environmental researchers, educators, and policy makers;
- Serve as a clearinghouse for environmental information about the region;
- Enhance understanding of environmental issues by regional policy makers and the public;
- Promote models that integrate economic, environmental, and social impacts of specific economic development strategies; and
- Create and disseminate educational resources and opportunities at all levels.

These goals are accomplished through four primary program areas:

Research projects carried out by FLI faculty and collaborators are often interdisciplinary and primarily focused on water quality and other issues relevant to the Finger Lakes region. Research projects provide background information and insights about the local environment and systems.

Education is focused on developing curricular materials and resources that support and extend middle school and high school inquiry-based environmental education. The FLI creates, disseminates, and coordinates a variety of educational initiatives in the Finger Lakes region including the Science on Seneca and Stream Monitoring programs.

Community Outreach promotes knowledge, resources, and life experiences leading to stewardship of the Finger Lakes. Programming is targeted to a variety of learners and ages to inspire participants to become active and knowledgeable citizens of the Finger Lakes.

Economic Development and environmental quality are inextricably linked in the Finger Lakes region. Comprehensive land use planning, policy development, and sustainable enterprise can

help to simultaneously support and promote economic vitality and environmental protection in the region.

Watercraft stewards being trained on plant ID

Mission

The mission of the Finger Lakes Partnership for Regional Invasive Species Management (Finger Lakes PRISM) is to reduce the introduction, spread, and impact of invasive species within the Finger Lakes PRISM region through coordinated education, detection, prevention, and control measures (adopted by the Steering Committee, June 2014).

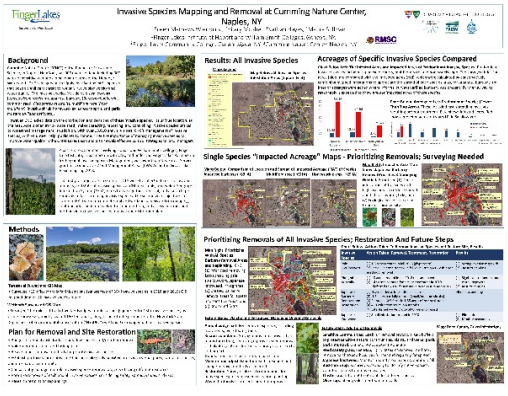
Vision

The Finger Lakes PRISM is recognized as the primary organization for invasive species detection, prevention, control, and education and outreach within the 17-county region of the Finger Lakes. The Finger Lakes PRISM will work collaboratively with its partners and the public to provide education and mitigate the impacts of invasive species within our region.

1. Coordination with Partners

Over the past fiscal year, the Finger Lakes PRISM actively recruited and worked with partners such as the Finger Lakes PRISM working groups and through social media, listservs, and presentations at various meetings. Through these avenues, the Finger Lakes PRISM has made strides to involve partners and allow for open communication and engagement across the region. The working groups and steering committee updated the Finger Lakes PRISM high priority invasive species list for the state, has kept apprised of partner activities, and sought to collaborate on activities within the region. Examples of supporting and coordinating with partners included:

- Providing letters of support for partner grant projects



Invasive species mapping at Cumming Nature Center as part of a USDA USFS CWMA grant.

- Working in partnership with the NYS Giant Hogweed Team to control giant hogweed in the Finger Lakes region
- Supporting, managing, or facilitating invasive species project work at Ganondagan State Historic Site, Finger Lakes National Forest, and Cumming Nature Center
- Supporting Finger Lakes Regional Watershed Alliance mission and objective to preserve and protect the watershed with a collective regional voice; to join forward to advocate for mutually beneficial regional changes,

and promote collective actions that represent the desires of the entire Finger Lakes region

- Supporting county water quality and technical committees through presentations and attendance at meetings throughout the region
- Supporting AIS outreach and education projects for Livingston County Watershed Education Center on Conesus Lake; Canandaigua Lake Watershed Association (Development of Clean, Drain, Dry Public Service Announcement video); Keuka Lake Association (support for watercraft stewards), Cayuga Lake Watershed Network (support of Hydrilla Hunters and to distribute Hydrilla information sheets to boat launches)
- Providing Hydrilla project management for the Lansing infestation through conference calls with the landowner, New York State Department of Environmental Conservation, United States Army Corp of Engineers, and managing a team of Hydrilla surveyors on Cayuga Lake
- Supporting Hydrilla management and education & outreach across the Finger Lakes region
- Supporting the starry stonewort (SSW) collaborative through participating in conference calls, working with the SSW Collaborative Manager to disseminate information to the region, and collecting data on SSW occurrences in the state
- Supporting watercraft steward AIS prevention and control at boat launches in the Finger Lakes region by disseminating information regarding the program to stakeholders and hosting partner meetings where information was presented by the AIS Coordinator
- Co-chairing the Upper Susquehanna Conservation Alliance Invasive Species Working Group

Partnership Meetings

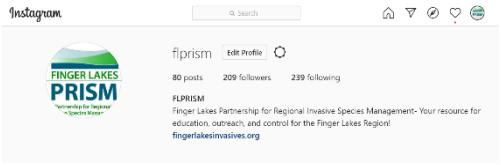
During the 2019-2020 fiscal year, the Finger Lakes PRISM hosted two full partnerships meeting. The first was held at Onanda Park in June 2019. The second meeting was held in the November 2019 at the Finger Lakes Welcome Center. Approximately 50 people attended each meeting. The Finger Lakes PRISM and FLI hosted the Finger Lakes Research Conference on January, 2020 where 170 people were in attendance to hear presentations and view posters on the invasive threats and water quality issues in the Finger Lakes region. Finally, the Finger Lakes PRISM hosted a behavior change workshop supported by the NYSDEC Invasive Species Coordination Unit for PRISM leaders and NYSDEC staff about how to get people to act in pro-environmental ways to prevent the spread and impact of invasive species. In addition to this workshop, the Finger Lakes PRISM hosted the April PRISM leader's in-person meetings and prioritization program.

Beyond Attitude Workshop to PRISM leaders and partners, April, 2019.

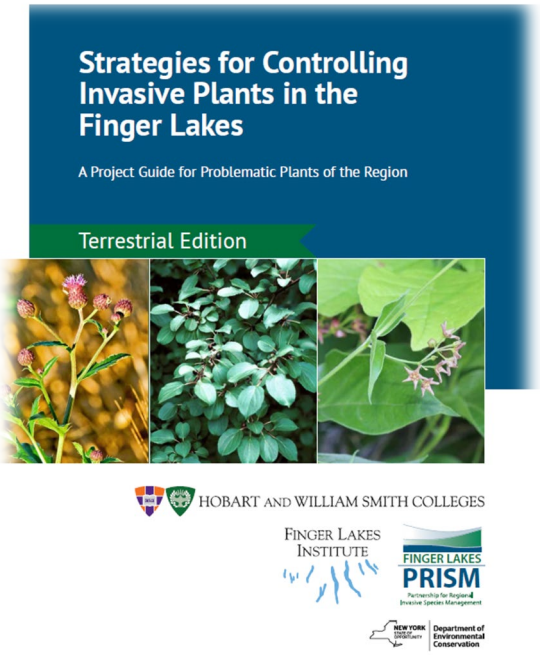
Finger Lakes PRISM full partner meeting at Onanda Park, spring 2019.

Listserv:
The Finger Lakes PRISM listserv added 57 people and is currently at 415 people. This list serves as an important way to communicate with the community about invasive species and events within the Finger Lakes PRISM.

Social media:
The Finger Lakes PRISM maintains a Facebook, Instagram, and Twitter presence. Facebook has 674 page followers and 577 page. Twitter has 402 followers and Instagram has 198 followers and is following 239 accounts.



Educational Materials and Media:
The Finger Lakes PRISM created brochures and hosted projects that have been highlighted in various media outlets including the Rochester Democrat and Chronicle, the Messenger Post, Finger Lakes Times, WXXI, and Fox News Rochester. A Finger Lakes Field Guide for controlling invasive plants in the Finger Lakes and a Hydrilla and other plant sampling kit was launched to partners to help survey for and report invasive species in the region. A new email address, flxplantID@gmail.com, was created to encourage community members to send pictures of suspect plants for identification.



Website Platform:
The fingerlakesinvasives.org website promotes all things invasives in the region. All factsheets, resources, meeting minutes, and other resources are available on this site and community members are referred to this site for all things invasive in the Finger Lakes region.

2. Recruit and Train Volunteers

Volunteer trainings occurred throughout various programs and included invasive species identification

workshops and iMapInvasives trainings. Highlights from the numerous trainings are below.

By the numbers
214 community members attended Finger Lakes PRISM workshops
2,042 community members attended a presentation by the Finger Lakes PRISM
2,404 community members participated in a hands-on invasive species workshop
107,529 community members attended events where outreach materials were available

The Finger Lakes Institute hosted a training for watercraft stewards from across the region in May, 2019. There were over 30 people present to learn how to prevent the spread and impact of AIS, and how to engage in education and outreach to recreationists to enable the public to remain diligent in the fight to the spread of invasives through Clean, Drain, Dry practices. Partners from Onondaga Environmental Institute and Cortland County Soil and Water Conservation District participated in the training. Weekly updates and meetings were held at FLI to enhance steward knowledge and ability to identify high risk invasive species.

In July, teachers from around the region came together at the Finger Lakes Institute for a full day of hands-on invasive species training in collaboration with the NYS DEC. The course content included both terrestrial and aquatic invasive background, identification, and reporting and teachers were able to model projects to include in their classrooms.

In 2019, over 43 volunteers were trained through the FLX Macrophyte Project. These volunteers surveyed 19 waterbodies. Luckily, no Hydrilla or additional water chestnut was reported.

Macrophyte survey training for volunteers in 2019.

3. Monitor for Early Detection of Invasive Species

Ten iMapInvasives trainings and invasive species identification and detection sessions were held throughout the 2019. During this period, there were 285 confirmed observations in the Finger Lakes.

Japanese stiltgrass discovered in Monroe County

The Finger Lakes Institute crew assisted the NYSDEC in surveying for high-priority AIS in Braddock Bay Wildlife Management Area, Monroe County. This, and other programs have been invaluable due to leveraging of the PRISM programming and securing external funding for adding more eyes on the ground to reduce the spread and impact of invasive species.

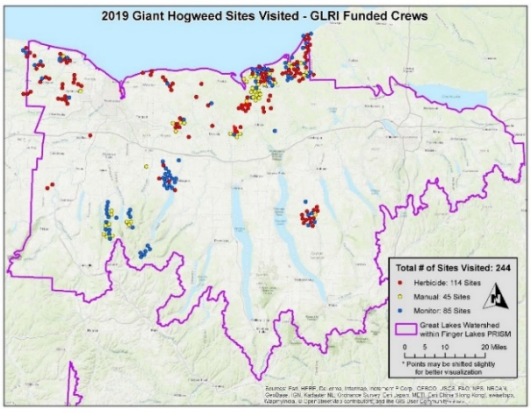
A new detection of our high priority species occurred when Japanese stiltgrass was discovered in a county park outside of the Powder Mills Park Fish Hatchery in Monroe County, August, 2019,. The population was surveyed by Professor Amatengelo from SUNY Brockport and staff from Monroe County Parks came to identify and help plan a control path for this this invader.

PRISM partners from Monroe County, David Werier. NYSDOT, FLCC, and SUNY Brockport survey and report Japanese angelica tree

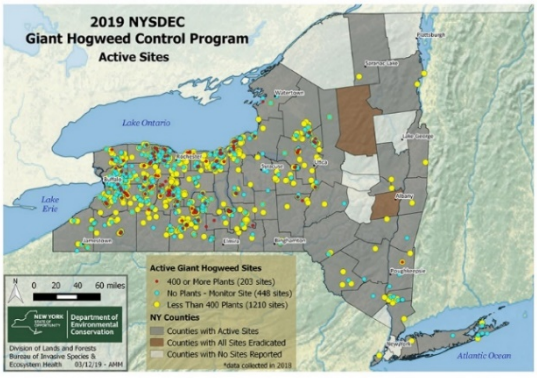
Similarly, in 2019, Japanese angelica tree was discovered in a Monroe County Park by Dave Werier, a biological and ecological consultant who was biking in the area. The 2020 round of subcontracts will address the treatment of this high priority invasive species.

Finally, an infestation of Hydrilla was discovered by a former field crew member of Racine-Johnson who saw the plant growing in a marina in Lansing, NY. The Finger Lakes Institute Hydrilla field crew surveyed the marina and surrounding areas and determined that the Hydrilla was contained within the marina. Treatment was conducted at the end of October by the Finger Lakes Institute and survey and treatment will occur in 2020.

Giant hogweed in Finger Lakes (USDA NRCS funding 2016-2020)



Three field crew members were hired and trained alongside the NYSDEC giant hogweed project and one 0.50FTE education and outreach coordinator were funded by this



project. This greatly increased the capacity of the region to control and provide outreach regarding giant hogweed.

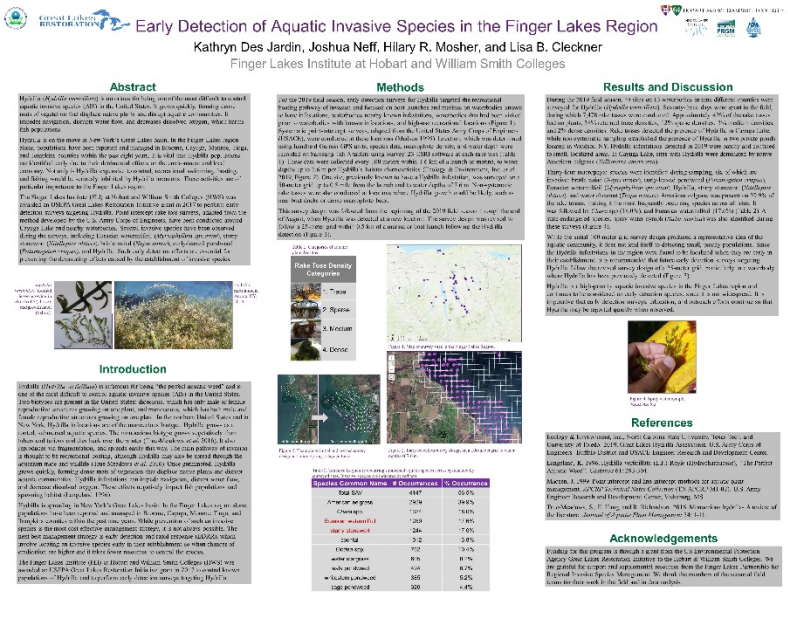
The giant hogweed project had presence at activities/events/meetings to increase information and outreach regarding giant hogweed. This is exemplified by the reporting of giant hogweed in Seneca County where previously, no giant hogweed was reported. Additionally, the Finger Lakes PRISM was able to increase collaboration with partners in Monroe, Cayuga, and Wayne County to develop/refine materials and solicit information about giant hogweed outreach in these areas. Working with the staff at NYSDEC, new giant hogweed maps were created for Monroe and Wayne Counties that included a more robust determination of control area based on parcel size. For the 2019 season, the USDA NRCS-funded crew visited 244 sites that have or have previously had giant hogweed populations. During this period they surveyed 82 acres for giant hogweed and controlled giant hogweed across 24.2 acres within the Great Lakes basin.

Table 1. Giant hogweed control and survey in the Finger Lakes region for 2019.

Giant Hogweed in the Great Lakes basin	Target	2019 Total	% Complete
Giant hogweed site visits	300 sites	244 sites	81.33%
Giant hogweed site surveys	NA	82 acres	NA
Giant hogweed control	40 acres	24.2 acres	60.50%

Hydrilla Control and Survey Program

The FLI employed a field team to work on the Hydrilla Project to survey for and map Hydrilla and other AIS in the Great Lakes basin of the PRISM region. Survey efforts focused on the infested waterbody, Cayuga Lake; proximal waterbodies, Seneca and Owasco Lakes; waterbodies visited prior to being launched near known infestations, and high-use, high-recreation areas, including Conesus Lake, Keuka Lake, Canandaigua Lake, Skaneateles Lake, and Lake Ontario embayments. The recreational boating pathway of invasion was targeted, so the areas around boat launches and marina were surveyed in these waterbodies.



Hydrilla surveying in the Finger Lakes, 2019

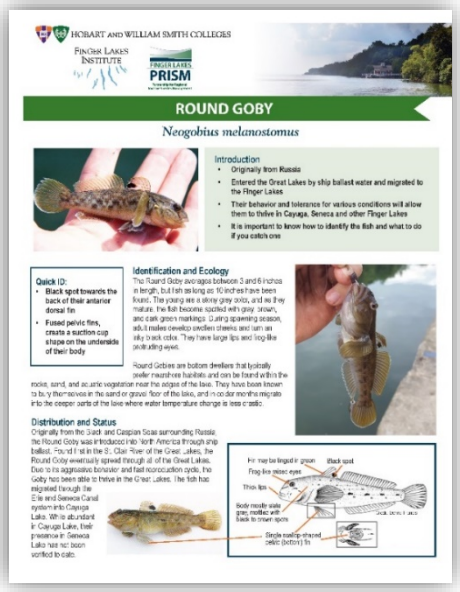
Point-intercept surveys were conducted on a 100 m2 grid in a 1-mile radius around marinas and boat launches, up to a depth of 25 ft. After a Hydrilla detection at the end of August, this survey

design was revised to be a 25 m2 grid in a 0.3-mi radius. Random rake tosses were also done from shorelines or docks when dense plants could be observed.

The team spent 73 days in the field and performed 7,478 rake tosses across 11 counties and 16 waterbodies. Hydrilla was documented in Cayuga Lake as well as a couple private ponds. Thirty-seven macrophytes species were identified throughout the field season. Seven of these were invasive: Hydrilla, starry stonewort, water chestnut, curly-leaved pondweed, American lotus, and brittle naiad.

One species identified is a state-listed endangered plant: spiny naiad (*Najas marina*). This species resembles the invasive brittle naiad, though it has more sharply toothed leaves and possesses prickles along the internodes. It was detected in Cayuga Lake, where there have been historical populations. This was the first observation of this species in Cayuga Lake in 38 years and only the third extant record in New York State!

The Department of Biology at Hobart and William Smith Colleges has a strong interest in invasive species. Susan Cushman, (Research Scientist) is working with the angler community to raise awareness of the round goby (*Neogbobius melanostomus)* in the Finger Lakes. Working with student interns, Cushman engaged anglers and created a fact sheet to provide information about the goby. Cushman is working on identifying the preferred food source for the goby based on stomach content analysis.


HOBART AND WILLIAM SMITH COLLEGES
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ROUND GOBY
Neogobius melanostomus
Introduction
- Originally from Russia
- Entered the Great Lakes by ship ballast water and migrated to the Finger Lakes
- Their behavior and tolerance for various conditions will allow them to thrive in Cayuga, Seneca and other Finger Lakes
- It is important to know how to identify the fish and what to do if you catch one

Quick ID:
- Black spot towards the back of their anterior dorsal fin
- Fused pelvic fins, create a suction cup shape on the underside of their body

Identification and Ecology
The Round Goby averages between 3 and 6 inches in length, but fish as long as 10 inches have been found. The young are a skinny grey color, and as they mature, the fish become spotted with grey, brown, and dark green markings. During spawning season, adult males develop swollen cheeks and turn an inky black color. They have large lips and frog-like protruding eyes.

Round Gobies are bottom dwellers that typically prefer nearshore habitats and can be found within the rocks, sand, and aquatic vegetation near the edges of the lake. They have been known to bury themselves in the sand or gravel floor of the lake, and in colder months migrate into the deeper parts of the lake where water temperature change is less drastic.

Distribution and Status
Originally from the Black and Caspian Seas surrounding Russia, the Round Goby was introduced into North America through ship ballast. First found in the St. Clair River of the Great Lakes, the Round Goby eventually spread through all of the Great Lakes. Due to its aggressive behavior and fast reproduction cycle, the Goby has been able to thrive in the Great Lakes. The fish has migrated through the Erie and Seneca Canal system into Cayuga Lake. While abundant in Cayuga Lake, their presence in Seneca Lake has not been verified to date.

Meghan Brown (Associate Professor of Biology) teaches an invasion ecology course and works with the bloody-red shrimp (*Hemimysis)* in Cayuga Lake and has published on the effects of *Bythotrephes longimanus* in waterbodies and effects of other species invasions in the Finger Lakes.

Brown also maps the current spread of invasives, explores ways to limit their range expansion, and quantifies the effect of invasives on native species. Kristen Brubaker (Assistant Professor of Environmental Studies) teaches a capstone course focusing on invasive species, and Beth Newell (Professor of Biology) works with students to address EAB and European fire ants. Brad Cosentino, Assistant Professor of Biology, is studying the impact of the invasive earthworm on native populations of salamanders in the Finger Lakes.

Other programming in the Finger Lakes to increase our monitoring networks include:

- Scouting camp and others train people to survey for invasive species, Girl Scout badge for invasive species warriors and ecology badge program
- Facilitate monitoring networks with teachers at Allendale Columbia, Hobart and William Smith Colleges, University of Rochester, and Rochester Institute of Technology to train students to identify and report invasive species

4. Manage Invasive Species Infestations on Private and Public Lands

Highlights of eradication projects in the Finger Lakes:

Water chestnut: The Finger Lakes Institute along with NYSDEC staff helped survey for and remove water chestnut in Braddock Bay WMA. Staff surveyed for and removed the invasive in known locations and helped scout and remove across the many channels and waterways in this area. Scouting and removing are set for 2020. Good news, the original infestation near the Braddock Bay Marina only had 7 plants this season! A huge improvement from the 7 tons removed in 2017.

Water chestnut was reported in Honeoye Lake for the first time and partners across the lake rushed in to help remove the rogue plant. Only one plant with three rosettes was found and removed from the lake and follow-up will occur in 2020.

Over 240 site visits and control across 24.2 acres with 82 acres surveyed for giant hogweed and other high priority species.

Hydrilla Control:

The FLI also collaborated with partners and stakeholders to manage Hydrilla infestations within the Great Lakes basin of Finger Lakes PRISM region.

The field team supported tuber and plant monitoring activities conducted by the USACE Buffalo District Office at the Aurora and South End infestations.

They also monitored Cayuga Lake's King Ferry infestation for Hydrilla growth after dredging activities occurred to manage the population. Hydrilla was detected at the end of June. Through collaboration with the USACE, this site was spot-treated with endothall in August. Hydrilla was observed dying back and was then not found within the site two weeks post-treatment.

A Hydrilla infestation was detected in a private marina in Lansing, Cayuga Lake, at the end of August. After extensive survey efforts, it was determined that the Hydrilla plants were only present within the marina. The Cayuga Lake South End Task Force and other stakeholders were consulted to determine a management plan and the site was treated with a copper herbicide in October. Two weeks post-treatment, there was visible damage to Hydrilla plants. An herbicide applicator has been contracted to conduct herbicide treatments during the 2020 field season.

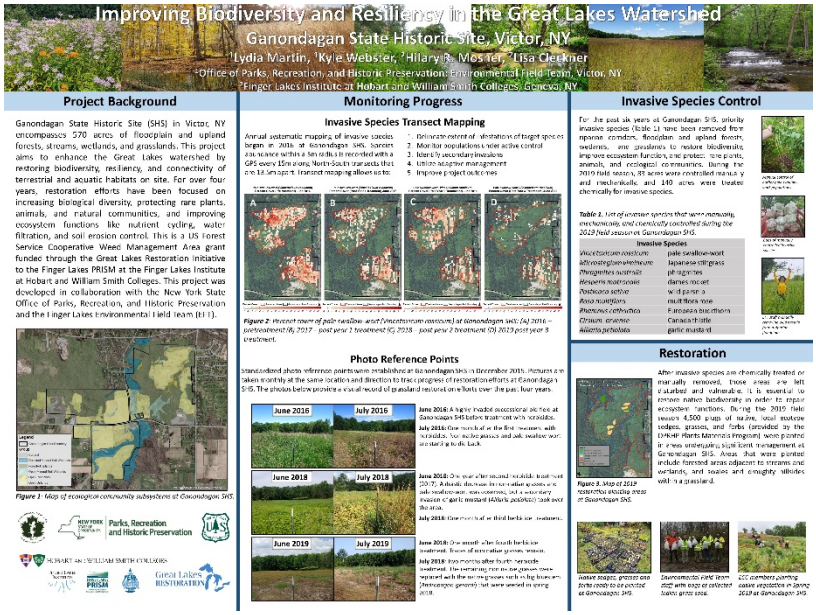
This infestation presented a unique challenge. One week after the Lansing infestation was discovered, a fall fishing derby was scheduled to take place immediately adjacent to the infested marina. The FLI partnered with local stakeholders and volunteers from the CLWN and South End Cayuga Lake Hydrilla Task Force to have a presence during this 39-hr event. A table with educational materials was set up and manned throughout the weekend. A watercraft steward was also present to conduct inspections of the watercraft participating in the event or recreating at the park. An estimated 170 people were reached during the event.

Rochester Museum and Science Center Cumming Nature Center

The field crew members have mapped over 15miles of trail ways and documented invasive species across infestation sites. An herbicide applicator retreated the 1.3 acres of pale swallowwort that had been treated in 2019. Approximately 300 acres of wetland were surveyed via point survey across the perimeter of the complex. Data was collected using ArcGIS. Documented invasives species observations will be uploaded to iMapInvasives in the first quarter of 2020. Control of invasive species occurred across 89 acres with help of volunteers who contributed 327 hours for barberry removal.

Ganondagan State Historic Site

NYS Office of Parks, Recreation, and Historic Preservation staff, along with volunteers were able to address work on additional sites at Ganondagan over the summer season. Full time staff funded through this project was hired mid-November to carry out fall and winter survey as well as prepare for the field season. Survey has been conducted over 153 acre, 83 acres have received manual and mechanical control, 95.5 acres received chemical treatment, 127 acres have been restored, and 5 acres have been reseeded.

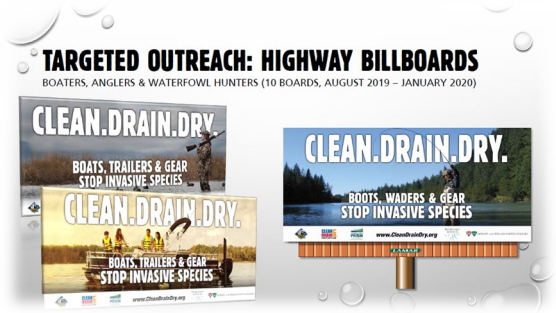


Finger Lakes National Forest Project

Vegetation management was contracted to control 15.3 acres of multiflora rose, honeysuckle, buckthorn and other invasives along the trails using glyphosate and a foliar spot spray. Post-treatment surveys for efficacy will occur in spring and summer of 2020.

5. Restore Sites Following Invasive Species Management and Control Efforts
   Restoration has occurred at Cumming Nature Center where Ferns were planted across a barberry removal area and an additional 1685 ferns were planted in a secondary 1.5 acre restoration plot. Surveys for post-treatment efficacy will occur in the summer of 2020.

6. Identify and Meet the Finger Lakes PRISM Education and Outreach Needs
   The Finger Lakes PRISM actively worked with community member and stakeholders to bridge the gap between resources and need in the community. For NYISAW, partners were provided with materials for their projects and programs and included fact sheets, NYSIAW buttons, and marketing materials. In addition to the iMapInvasives training and ID session, education and outreach was conducted at meetings, conferences, briefings, and water quality coordinating committees.



Targeted outreach through billboards in the Finger Lakes region. 10 signs with 1.3M impressions

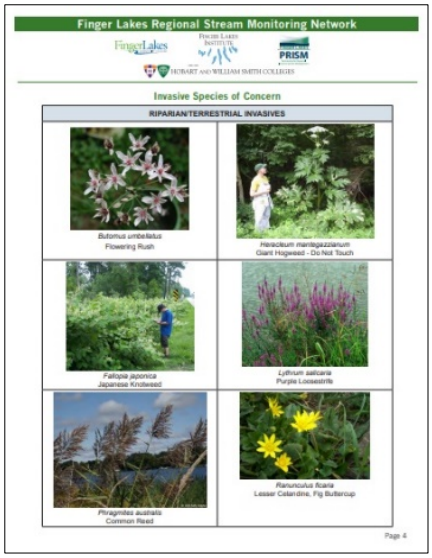
As part of the EPA GLRI Hydrilla control project, the FLI team participated in multiple outreach events including a 39-hour fishing derby held in

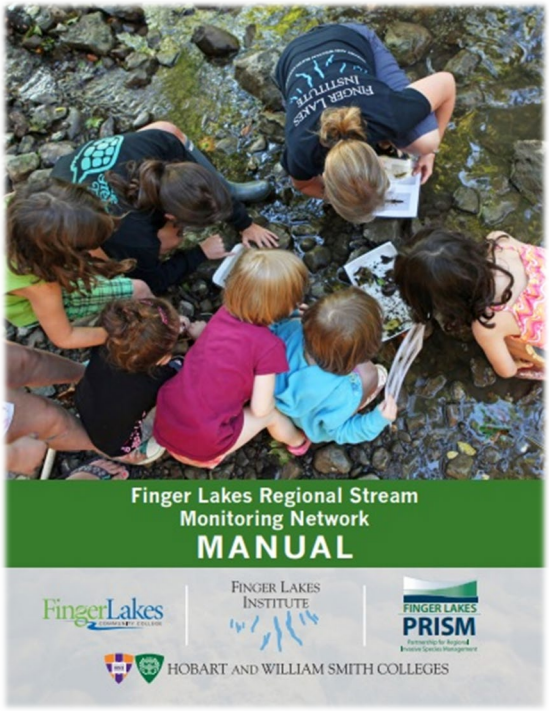
Lansing, NY, the location where a new infestation of Hydrilla was discovered.

Partnering with Wildlife Forever, the Finger Lakes PRISM secured billboards that promote Clean, Drain, Dry messaging across the state. There were 10 billboards positioned across the Finger Lakes between August 2019 and early January 2020.

In January, 2020, the FLI and Finger Lakes PRISM hosted the Finger Lakes Research Conference. Over 170 people were in attendance to hear presentations from experts on invasive species and other threats to the Finger Lakes.

The education program at FLI, run by Nadia Harvieux, is focused on developing curricular materials and resources that support and extend middle school and high school inquiry-based environmental education. The FLI creates, disseminates, and coordinates a variety of educational initiatives in the Finger Lakes region including the Science on Seneca and Finger Lakes Regional Stream Monitoring programs. Programs include invasive species presentations, workshops, or training to students in K-12, training to teachers, and engagement with the community.





The FLI has enhanced its school-based citizen science stream monitoring program by adding an invasive species module. In addition to collecting data on water chemistry, benthic macroinvertebrate biodiversity and physical characteristics of the stream, the new module includes 16 stream invasives and 10 riparian/terrestrial invasives that we are training our citizen scientists to identify. Students and teachers participating in stream monitoring are ideal early detectors for these invasive species and will report with photos and through an online database any invasives observed.

The invasive species module was piloted with Wayne Central High School on 10/1/20, York Central High School on 10/3/20 and Penn Yan Academy on 10/13/20.

Keuka Outlet stream sampling on 10/13/20 with Penn Yan Academy students. Notice the Japanese knotweed in the lower left hand corner of the left photo.

The PRISM created an invasive species program in collaboration with NYPENN, the **Girl Scout STEM Program** is an environmental program with a focus on invasive species and early detection. The girls earned an invasive species warrior patch. These events took place at two Girl Scout camps: Camp Hoover on the shores of Song Lake in Cortland County and Camp Comstock on the shores of Cayuga Lake in Thompkins County reaching 65 scouts.

We also participated in the Summer **Discovery Camp** with 9th graders at Penn Yan high school. We went paddling on Keuka Lake to search for and learn about aquatic invasive species, specifically starry stonewort, which is a high priority species in the Finger Lakes region.

Song Lake

Song Lake

Conservation Field Days is an outdoor educational event for sixth graders. The goal of this event is to teach students about the important environmental issues while having fun and to gain an appreciation for our natural environment and the need for continued conservation efforts.

Finger Lakes PRISM participated with six counties: Monroe, Ontario, Schuyler, Seneca, and Yates, reaching 1675 students.

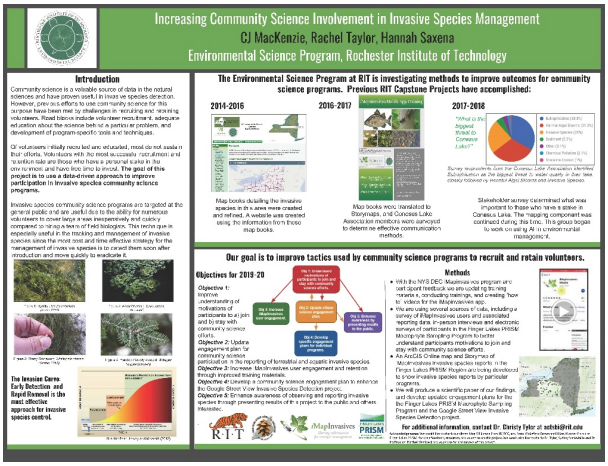
Yates County

Schuyler County

Empire Farm Days is an agricultural trade show and rural living event that exceeds 1000 attendees. The Finger Lakes PRISM did a presentation on 'Farm and Forest Invasive Species', as well as tabled the event.

Empire Farm Days

7. Support Academic Research through Citizen Science
   The Finger Lakes PRISM working groups determined the needs of the region for invasive species issues. Work currently supported includes investigating round goby distribution in the Finger Lakes (Susan Cushman, HWS), participation on the prioritization project with NYISRI, and collaboration with Chris Badurek, SUNY Cortland, using the FLNF data to help create a risk model for invasion on the forest. Additionally, the Finger Lakes PRISM worked with the Rochester Institute of Technology (RIT) on a capstone course to increase community involvement in citizen science programs. This resulted in a review of the FLI macrophyte survey program and an update to how we run this program.


Increasing Community Science Involvement in Invasive Species Management
CJ MacKenzie, Rachel Taylor, Hannah Saxena
Environmental Science Program, Rochester Institute of Technology

Introduction

The Environmental Science Program at RIT is investigating methods to improve outcomes for community science programs. Previous RIT Capstone Projects have accomplished:

2014-2016
Map books detailing the invasive species in th s area were created and refined. A website was created using the information from these map books.

2016-2017
Map books were translated to Storymaps, and Conesus Lake Association monitors were surveyed to determine effective communication methods

2017-2018
Stakeholder survey determined what was important to those who have a stake in Conesus Lake. The mapping component was continued during this time. This group began to work on using AI in uneven-aged management.

Our goal is to improve tactics used by community science programs to recruit and retain volunteers.

Objectives for 2019-20

Methods

RIT Capstone Class Research poster on investigating methods to improve community science programs.

8. Review and Update the PRISM Operational Guidance/Bylaws and Strategic Plan
   In March, 2020, Finger Lakes PRISM entered into a contract with CC Environment and Planning to conduct a strategic plan update and bylaw review. Information should be made available during the 2021 year.

9. Develop Annual Work Plan
   The 2019-2020 and 2020-2021 work plan are updated and available on the fingerlakesinvasives.org website.

10. Develop Annual Report
    Complete!

11. Coordinate Access to Private and Public Lands
    The Finger Lakes PRISM, in coordination with the NYS Giant Hogweed control team set up and coordinated access to private and public lands for giant hogweed control. Additional access to sites include projects on Ganondagan State Historic Site, Rochester Museum and Science Center Cumming Nature Center, Finger Lakes National Forest, and survey across the Finger Lakes on waterbodies of concern for Hydrilla.

12. Coordinate with Other PRISMs and Invasive Species Coordination Unit
    Throughout the 2019-2020 fiscal year, the Finger Lakes PRISM coordinated with other PRISMs through hosting or participating in monthly invasive species calls, co-chairing the Upper Susquehanna Conservation Alliance Invasive Species subgroup, and communicating with these partners when a need or invasive species issues arise.

13. Submit Quarterly Payment Requests
    Completed per institutional requirements.

14. Watercraft Inspection Boat Steward Program
    During the 2019 Finger Lakes Institute/Finger Lakes PRISM Watercraft Steward Program, over 20 stewards were hired and stationed at 19 boat launches around the Finger Lakes Region. Throughout the season stewards collected data on 29,806 watercraft and inspected 97% of those watercrafts for the presence of aquatic invasive species. Data collected during these inspections is valuable for a number of management decisions by informing things such as boat type and user distribution of the region. The overwhelming majority (75%) of users across the region were launching motorboats, while wind and hand powered, and person watercraft made up only 25% of launches combined (Figure 1). 67% of recorded users indicated general recreation as their primary use of the boat launch, while almost 33% of users indicated fishing as their primary use (Figure 2). While there are efforts to expand coverage to under-represented counties within the Finger Lakes PRISM, the FLI WSP placed stewards in seven of seventeen counties (Figure 3).

    Compared to other regions of the state, the Finger Lakes PRISM has many of the busiest launches. With access to statewide launch data afforded by the Watercraft Inspection Steward Program Application (WISPA), we are able to see that in terms of boat inspections per day where inspections were reported, eight out of twenty top launches were in the Finger Lakes PRISM. Of those eight launches, the FLI WSP was provided either supplementary or primary coverage at five of these launches (Figure 4). Boaters utilizing Finger Lakes boat launches come from all over the United States. Boats registered to 33

different states including some as far away as Arizona have traveled to utilized these boat launches, and were inspected by FLI stewards (Figure 5).

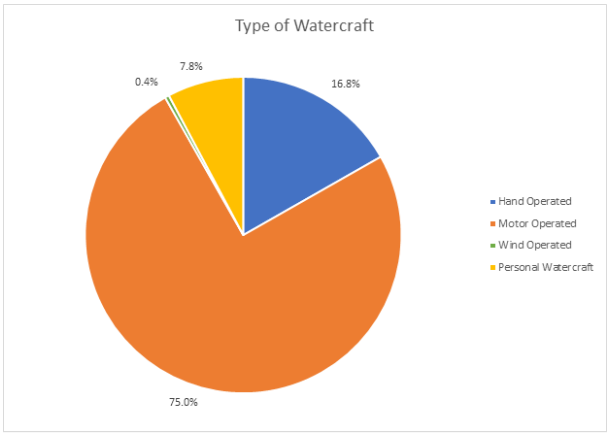


Figure 1. Watercraft type distribution of boaters across FLI WSP launches.

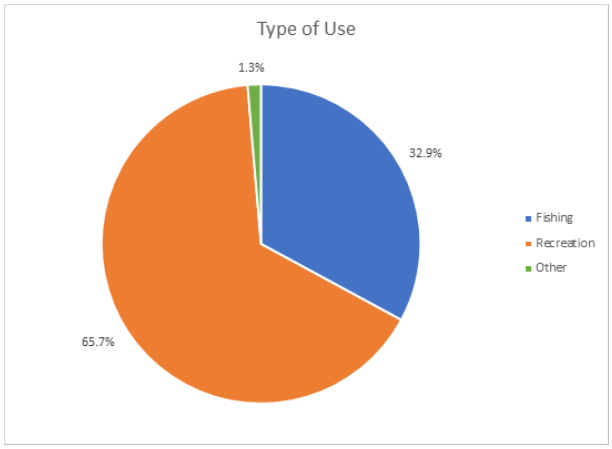


Figure 2. Categories of user groups across FLI WSP launches.

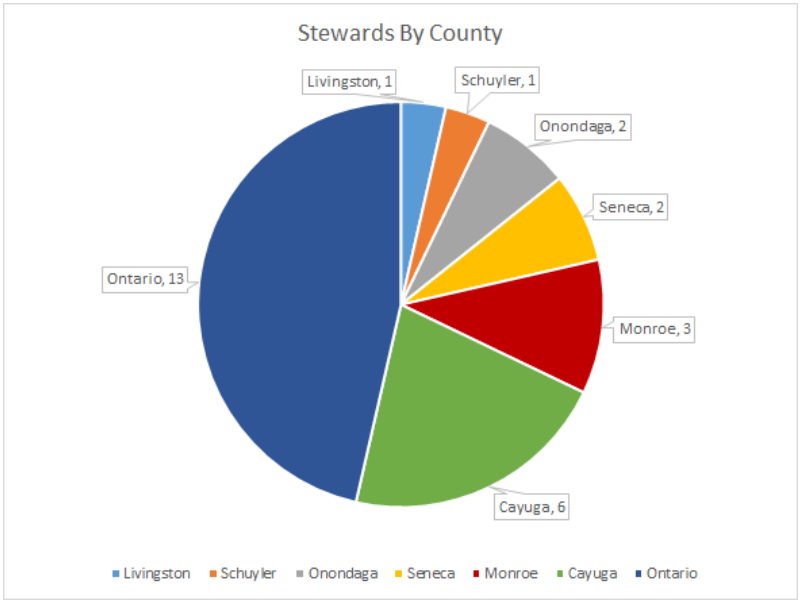


Figure 3. Distribution of Finger Lakes PRISM counties with FLI WSP coverage present.

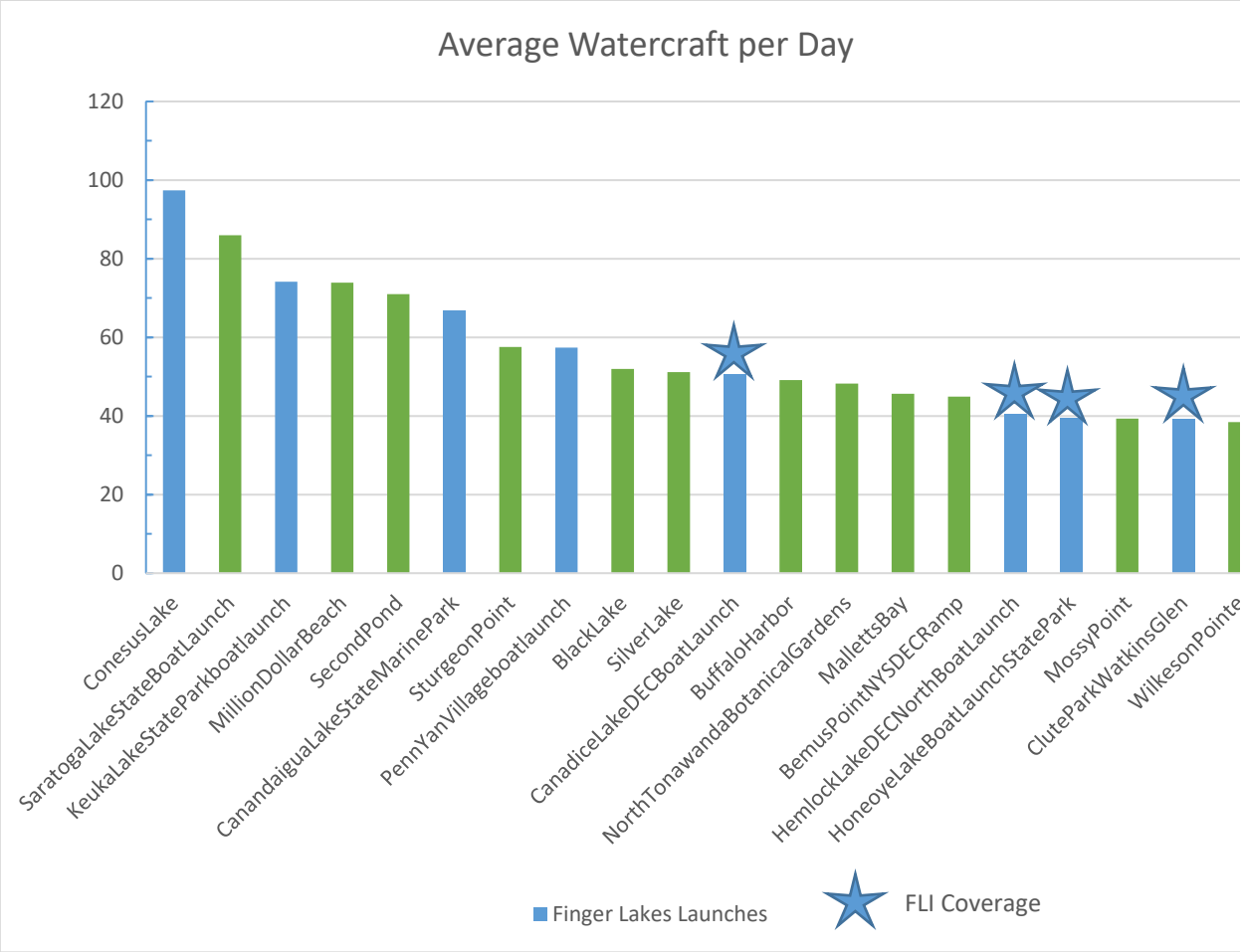


Figure 4. Top 20 WISPA boat launches ranked by total number of watercrafts observed per day.

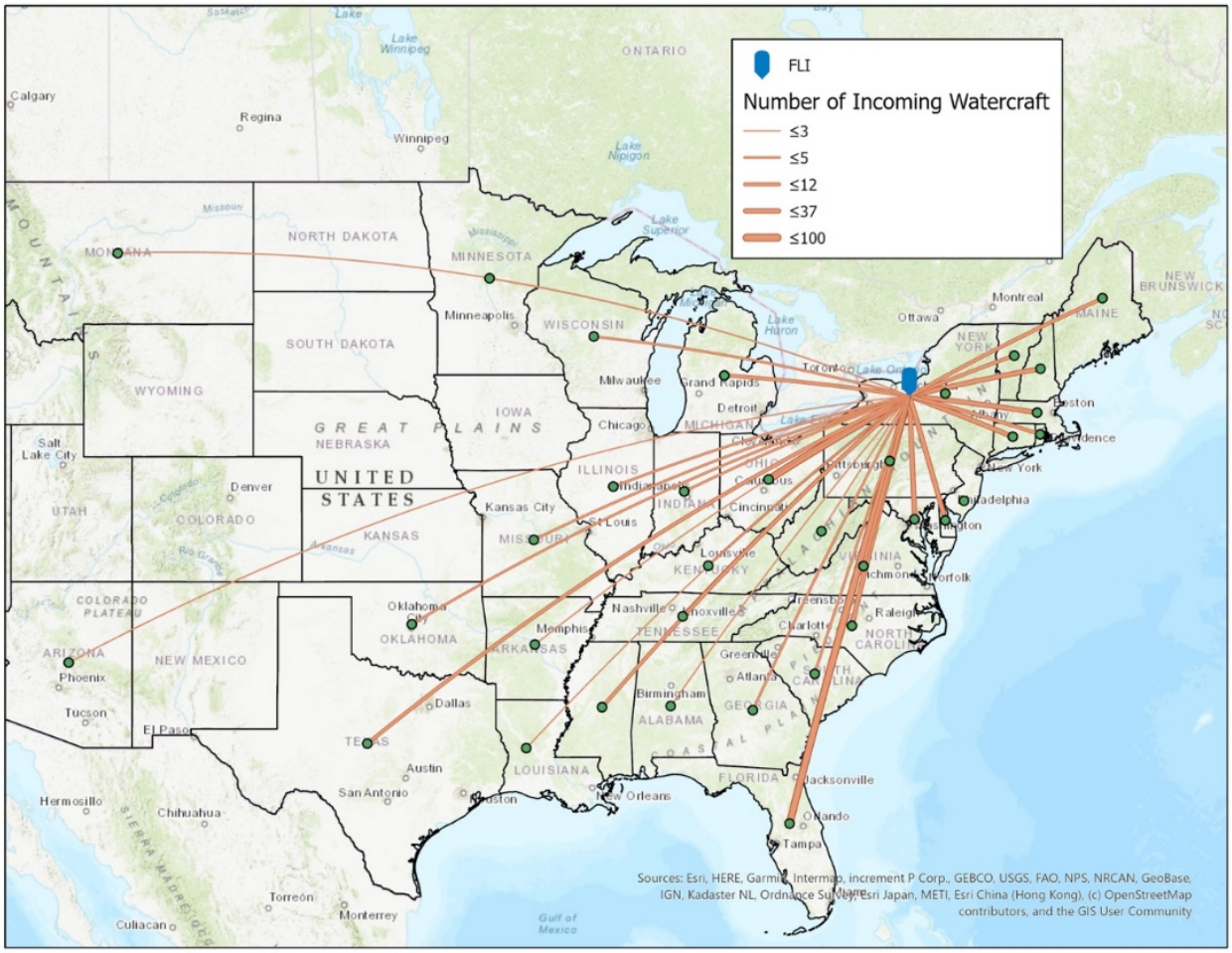


Figure 5. Sources of incoming watercraft inspections conducted by FLI WSP.

Partner Reports

Wildlife Forever

Partnership with Wildlife Forever to place 10 billboards across the Finger Lakes PRISM region to help recreationist understand the need to Clean. Drain. Dry every time they recreate in and around our watersheds. This collaboration between Wildlife Forever and Finger Lakes PRISM has brought awareness to the region and helps people remember to help protect our watersheds.

$25,350 in in-kind support!
>1.3M connections!

CAMPAIGN IMPACT SUMMARY

REACHED OVER 1.3 MILLION CONTACTS WITH THE CLEAN DRAIN DRY AIS PREVENTION MESSAGE

Objective	Cost	Contacts Reached	In-Kind
Highway Billboards (Summer)	$ 5,800.00	606,204	$ 13,800.00
Highway Billboards (Fall & Winter)	$ 8,500.00	694,472	$ 11,550.00
Total	$ 14,300.00	1,300,676	$ 25,350.00

In-kind contributions represent Wildlife Forever's added value through leveraged non-profit discounts and bonus ad space.

THANK YOU!

We appreciate your continued partnership and support in preventing the spread of invasive species through outreach and education!

With your help the *Clean Drain Dry Initiative*™ urges boaters, anglers and outdoor enthusiasts to take action at the boat ramp, on the trail, and in the field to stop the spread of invasive species. Using innovative marketing approaches, we have developed a national movement changing behavior through simple, consistent messaging and targeted outreach. Empowering the public with information and a sense of urgency, the spread of invasive species can be slowed. Preventing further introduction will provide researchers and managers the time to gain control of these threats. The Clean Drain Dry Initiative partners and sponsors have developed a nationwide educational effort that seeks to protect America's waters and help sustain and grow outdoor recreation.

Sincerely,

Dane Huinker
Conservation Program Manager
Wildlife Forever

Prepared by Hilary R. Mosher, Finger Lakes PRISM Coordinator

NYSDEC Region 8 Forestry

Prescribed fire is one method used to control invasive plants. NYSDEC Region 8 continues to have an annual spring prescribed fire program, with hopes to expand the program to include fall burns. In 2019 prescribed fires occurred at Rush Oak Openings UA, Helmer Creek WMA, West Hill WMA, West Hill SF and Coon Hollow SF helping to maintain a total of 90 acres of native warm season grassland habitat. Approximately 40 staff involved over 4 days.

Rush Oak Unique Area burn with help from Forestry, Wildlife, Excelsior Conservation Corps, Forest Rangers and other volunteers

In 2019 DEC Region 8 had an active year of attacking invasive species with pesticides. Staff treated knotweed, mile-a-minute, phragmites, honeysuckle, swallowwort and other invasives on State Forests. In September we tackled Hemlock Wooly Adelgid on Hemlock-Canadice State Forest. The Bureau of Invasive Species and Ecosystem Health sent out equipment for Region 8 to use, and a couple of staff members to provide training. Thanks to Jeff Friedman and Andy MoskaLee for assisting. 16 staff spent 1 ½ days to treat 25 acres.

Region 8 Forestry staff treating for Hemlock Wooly Adelgid

New York State Hemlock Initiative

The mission of the New York State Hemlock Initiative (NYSHI) is to coordinate state-wide efforts of land owners, state and federal agencies, government officials, and concerned citizens to conserve New York State's hemlock trees. Our research focuses on the management of hemlock woolly adelgid (HWA), a non-native invasive insect, using biological control. Additionally, our work involves public outreach to engage stakeholders and increase awareness of the threats posed by HWA and other invasive forest pests.

The New York State Hemlock Initiative's programs in research, releases, coordination, and outreach continued to grow in 2019. We refined our rearing and release monitoring techniques, testing two different approaches to rearing for *Laricobius* beetles and expanding our capacity for *Leucopis* silver fly production. We continued to develop our research programs, building our knowledge of *Leucopis* flies, studying HWA phenology, and learning more about *Laricobius* feeding. In the spring we conducted our largest HWA biocontrol release to date, with over 2,000 flies released at Taughannock State Park. We coordinated with federal, state, and local partners across New York to support hemlock conservation research and conservations. We expanded our extension programs to include train-the-trainer workshops, and reorganized our citizen science programs. We continue to deepen our understanding of the ecology and phenology of HWA and its predators, and to build support for HWA management across the state. As a result of this work, we are moving into 2020 with a strong research program, many release sites to monitor for establishment, and a thriving network of partners and volunteers committed to hemlock conservation in New York.

The NYSHI is located in the Finger Lakes PRISM, and is deeply involved with our home prism. In 2019 we participated in steering and working group committees, and conducted sixteen HWA events within the PRISM (424 attending, 822 contact hours) including a presentation at the June full partner meeting and a train-the-trainer workshop. We continue to monitor and release biocontrols in this region. We also conducted surveys for establishment at a wide range of previous HWA biocontrol release sites, and conducted additional releases of both *Laricobius* beetles and *Leucopis* flies. In fact, we are pleased to report our largest biocontrol release ever: over 2,000 flies released at Taughannock Falls State Park on June 4th. We monitored HWA phenology across the PRISM, with staff checking phenology at Cornell University and Taughannock Falls State Park and phenology volunteers monitoring near the towns of Bath and Naples, NY. We continued to support our most dedicated group of HWA survey volunteers, the Central New York Survey Team. Led by Master Naturalist Steve Kinne, this stalwart crew continued to provide excellent data to NYSHI and state foresters in Madison, Onondaga, Cortland and Chenango counties in 2019. They have developed a close and productive with the regional foresters in those areas, and conducted **twenty-nine surveys** in the region in 2019.

The individual events:

- 1/24/2019: Poster at FLI Research Conference, HWS Colleges, Geneva NY. Poster session, 141 attending conference. Charlotte Malmborg presenting.
- 1/26/2019: HWA Talk and Training with Steve Kinne, Rogers Environmental Center, Sherburne, NY. 3 h, 12 attending, 33 contact hours. Caroline Marschner presenting.
- 2/2/2019: HWA Talk and Training with CCE Erie County, Letchworth State Park, NY. 2.5 h, 28 attending, 70 contact hours. Charlotte Malmborg presenting.
- 2/5/2019: HWS Colleges Invasive Ecology course guest lecture-HWA Talk, Geneva, NY. 1.5 h, 15 attending, 22.5 contact hours. Charlotte Malmbog presenting
- 2/25/2019: HWA talk and training with CCE Seneca County, Ovid Firehouse, Ovid NY. 1.5 h, 14 people, 21 contact hours. Charlotte Malmbog presenting
- 2/26/2019: "HWA Biology, Management, and Reporting" at CCE Broome County, Binghamton NY. 2h 50 attending, 100 contact hours. Charlotte Malmbog presenting
- 3/5/2019: "Conserving a Legacy: Managing the Threat of HWA in our Forests" at FLCC Muller Field Station, Honeyoe NY. 1.5h, 20 people, 30 contact hours. Charlotte Malmbog presenting
- 3/10/2019: "HWA in New York and HWA Survey Training" with CCE Yates, Keuka Lake State Park, NY. 3 hours, 7 attending, 21 contact hours.
- 3/16/2019: "Hemlocks and HWA: Identifying and Reporting an Invasive Forest Pest" for Onondaga Chapter of the Adirondack Mountain Club, Syracuse, NY. 1 hour, 38 people, 38 contact hours. Charlotte Malmbog presenting
- 3/19/2019: "Hemlock Woolly Adelgid in New York", lecture given to Cornell University IPM course, Ithaca NY. 1 h, 28 attending, 28 contact hours. Mark Whitmore presenting
- 4/9/2019: "Hemlock Woolly Adelgid: Biology, Management, and Biocontrol Updates", presented to CCE Yates, CLWA, and Ontario County Soil and Water, Naples NY. 1.5 hours, 13 attending, 19.5 contact hours; Charlotte Malmborg presenting.
- 5/14/2019: "Hemlock Trees and HWA in the Finger Lakes" talk for the Schuyler County Historical Society, Forker Excavation, Montour Falls NY. 0.5 hours, 23 people, 11.5 contact hours; Charlotte Malmborg presenting.
- 5/24/2019: "A morphological study of Dipteran predators found on pine bark adelgid (*Pineus strobi*) in New York State", poster presentation at the Cornell University undergraduate honors thesis banquet, Ithaca NY. 1 hour, 100 people, no contact hours as it was a poster presentation; John Paul Hellenbrand presenting.
- 6/5/2019: "Forest Pests for Fifth Graders", HWA presentation and training at Stonehenge Elementary School, Camilus NY. 3 h, 154 people, 462 contact hours; Charlotte Malmborg presenting.
- 6/27/2019: "Hemlock Wooly Adelgid Update" at the Finger Lakes PRISM full partner meeting, Canandaigua NY. 0.5h, 30 attending, 15 contact hours; Caroline Marschner presenting.
- 9/10/2019: "NYSHI Train-the-Trainer Program: FL region" at the Seneca Park Zoo, Rochester NY. 9 participants, 2 hours, 18 contact hours; Charlotte Malmborg presenting.

- 9/22/2019: Master Naturalist Talk and Training at the Arnot Forest, Newfield NY. 32 participants, 1.25 hours, 40 contact hours; Charlotte Malmborg presenting.
- 10/19/2019: Insectapalooza tabling. Table at a family event celebrating the diversity of insects and providing information on insects of all kinds. Over 2,500 in attendance; over six hours of tabling, Tonya Bittner and assistants presenting.

Finger Lakes Land Trust

- Roughly 150 hemlocks were treated with a basal bark spray at the Bahar Preserve in the Town of Niles. These treatments expanded on a round of treatments conducted in 2018.
- We continue our partnership with the NY Hemlock Initiative, where they have permission to monitor FLLT owned preserves as potential release sites for biocontrols.
- FLLT issued a research permit to the USDA to release and research EAB biocontrols (parisitoid wasps) on the Steege Hill nature Preserve in Big Flats, and the Houghton Family Preserve in Corning.
- Accommodated a Japanese knotweed biocontrol release on a conservation easement in Richford.
- Mechanically removed autumn olive and honeysuckle at two preserves as part of a separate grassland/meadow restoration projects.
- Continued mechanically removing barberry from a section of a floodplain forest at the Sweedler Preserve at Lick Brook.
- Provided a research permit to a SUNYESF researcher to study the efficacy of a biocontrol on pale swallowwort.

New York State Department of Transportation

Region 4 of the New York State Department of Transportation (NYSDOT) is in Rochester and includes; Monroe, Ontario, Wayne, Livingston, Genesee, Orleans and Wyoming Counties. Of those counties in Region 4, Monroe, Ontario, Wayne and Livingston Counties are within the Finger Lake PRISM. Since transportation systems can play a role in the spread of invasive species, NYSDOT is a participating member of the FL-PRISM.

During maintenance of the highway right-of-way, be it mowing, bridge/ culvert repair or replacement or highway reconstruction, the NYSDOT takes measures to prevent the spread of invasive species. The maintenance crews are trained for the identification of invasive species which helps to identify new areas that may be infected. These crews also take care to clean equipment to prevent the spread of seeds from one location to another. Maintenance also applies herbicide in spot locations to address invasive species, typically when we encounter Giant Hogweed. This hasn't covered a lot of plants or area but has stopped small populations from getting larger. We have also coordinated with DEC's Hogweed Hotline – reporting locations to them and coordinating with their field crews.

The construction projects along New York state routes also have exposure to invasive species. Contractors are directed, as part of the contract to; control invasives with herbicide, hand pulling and/or excavation. Also included in the projects are direction for the proper disposal of invasives and cleaning equipment to prevent the spread of invasive species.

The Region has both a Maintenance Environmental Coordinator and a Construction Environmental Coordinator, who work to educate maintenance and construction staff about invasive species within the area. They oversee and assist with many environmental concerns, including invasive species and preventing their spread.

The NYSDOT as a member of the FL-PRISM, welcomes the sharing of information. Being a member has been an educational experience as information gathered at PRISM meetings is brought back and shared with staff at the NYSDOT.

Item	Description	Qty	Units	Cost	Sub Total
617.01010024	Controlling Invasives with Herbicides	0			
617.01020024	Controlling Invasives by Pulling	0			
617.01030024	Controlling Invasives by Excavation	162	CY	$9.00	$1,458
617.10000024	Disposal of material with Invasives	191	CY	$14.00	$2,674
617.11000024	Equipment Cleaning for Invasives	3	Projects	$500.00	$1,500
				Total	**$5,632**

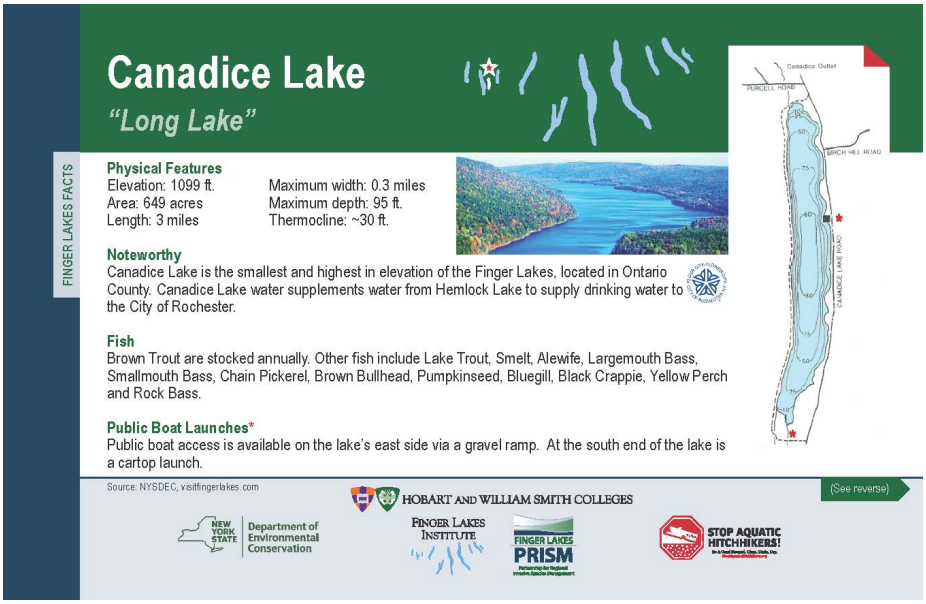
The College at Brockport

Mile-a-minute was first discovered in Livingston County in 2016. Since this point, partners have been scheduling hand-pulls to try to reduce the spread and impact of this invasive vine. The College at Brockport, with funding from the NYSDEC, has a project that looks to develop best management practices for controlling MAM. In 2019, partners from NYSDEC, College at Brockport, and FLI worked to fill multiple garbage bags of this vine. Thanks for the hard work to control this invasive!

Lake Reports

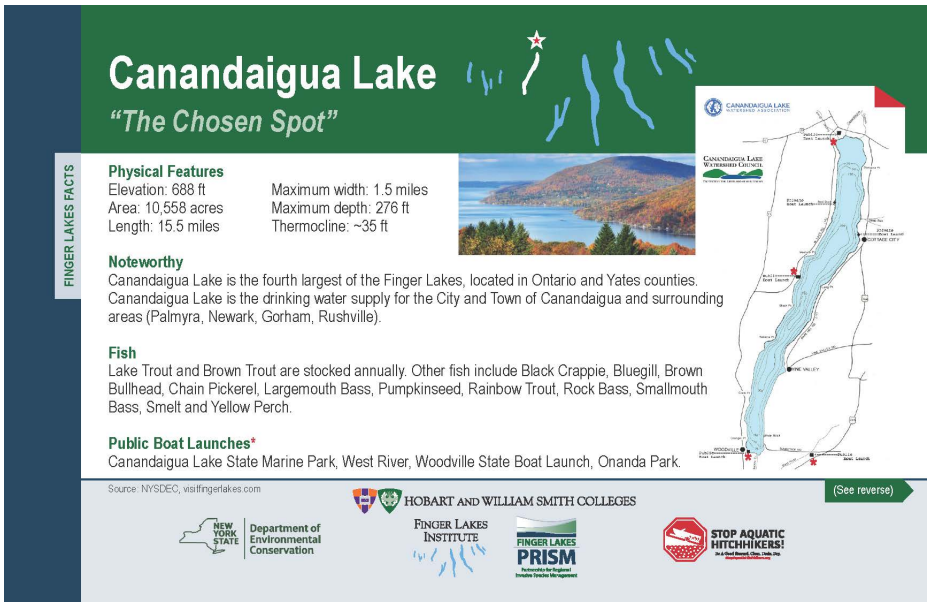
In 2019 and 2020, the Finger Lakes Institute undertook a campaign to bring awareness to the Finger Lakes region by creating fact cards for each of the eleven Finger Lakes with information that would be valuable for stakeholders such as physical features, fish present, and what invasive species to watch out for. The fact cards are presented below along with information from each lake regarding their invasive species work for the year.

Canadice Lake



Canandaigua Lake

Invasive Species Activities for Canandaigua Lake over the past year:



- Support for full time placement of watercraft stewards on the lakes' two busiest launch sites, the Canandaigua Lake State Marine Park and the DEC Woodville Launch

- The development of an AIS Guide and Bathymetric Map for Canandaigua Lake that highlights aquatic invasive species of concern and tips on how to clean, drain, dry

- The Production and distribution of and Invasive Species magazine using the PRISM fact sheets

- Tabling several area events / workshops and sharing info and resources about invasive species and their impact to the watershed

- Paid promotion of the Clean Drain Dry video on the CLWA facebook page (58,000+ impressions)

- Co-Sponsoring a Hemlock Woolly Adelgid workshop and walk

Cazenovia Lake Association

The Cazenovia Lake Association, the Town of Cazenovia, the Village of Cazenovia and Cazenovia College worked in cooperation to address 2 invasive species problems that exist on Cazenovia Lake. The two invasive species that are being addressed are Eurasian Milfoil and European Frogbit.

Eurasian Milfoil is being managed with the use of a herbicide called Triclopyr (trade name Renovate) in which we treat approximately 190 acres of the lake every 2 years. The treatment areas are based on rake toss studies which have been done yearly for the past 10 years and which show the highest concentrations of Milfoil. The treatments have worked incredibly well, killing only the Milfoil while not harming any of the native plants. Additionally, no other negative effects have been observed to other plants and wildlife.

The total cost of 1 full treatment is approximately $250,000 in which the 90% of the money comes from private donations. Additionally, there is approximately 452 hours of volunteer time required to perform the fundraising and the maintenance requirements before and after a treatment.

H*ere a picture showing the Frogbit removal*

The control of European Frogbit is performed by physically pulling the weed off of the surface of the water. This effort has been led by Cazenovia College and the work has been performed via a combination of paid students and volunteers. The Frogbit has been pulled the past 2 summers in August and September which are the peak growing months. It is a very messy and difficult task as the picture below shows. The town received a grant of roughly $48,000 from the NYSDEC for a 3 year period to pay students to perform the work and in addition there have been volunteers that have worked pulling the weed for 435 hours unpaid. It is a 3 year program with the goal of eliminating the Frogbit.

Cayuga Lake

Cayuga Lake Watershed Network Invasive Species Projects & Programs April 1 2019 – March 31 2020

Hilary Lambert, Steward/Executive Director
Jenn Tufano Grillo, Programs Staff & Hydrilla Program Manager

Website http://www.cayugalake.org
Facebook https://www.facebook.com/Cayuga-Lake-Watershed-Network-101436081850
Instagram https://www.instagram.com/cayuga_lake_wn/
Newsletter, in print and online https://www.cayugalake.org/resources/newsletters/

2019-2020 Program Highlights

- Hydrilla information boxes at 70 sites around Cayuga Lake – Dave's Team replenishes these during the summer and fall months. Reaches an estimated 300+ people per year.
- *Hydrilla Hunter Happenings* e-newsletters sent out to media list and listservs during summer and fall. Reaches over 1000 people each issue.
- Drafted, got approved and issued press releases for hydrilla treatment events, especially in Tompkins County. Three press releases reaching an estimated 1000+ each.
- CLWN's *Network News* newsletter issues featured hydrilla reporting and volunteer recruitment. They reach 600+ per issue, are available online:

https://www.cayugalake.org/wp-content/uploads/clwn_nn_i1_2020.pdf
https://www.cayugalake.org/wp-content/uploads/clwn_nn_i4_2019.pdf
https://www.cayugalake.org/wp-content/uploads/clwn_nn_i2_2019.pdf

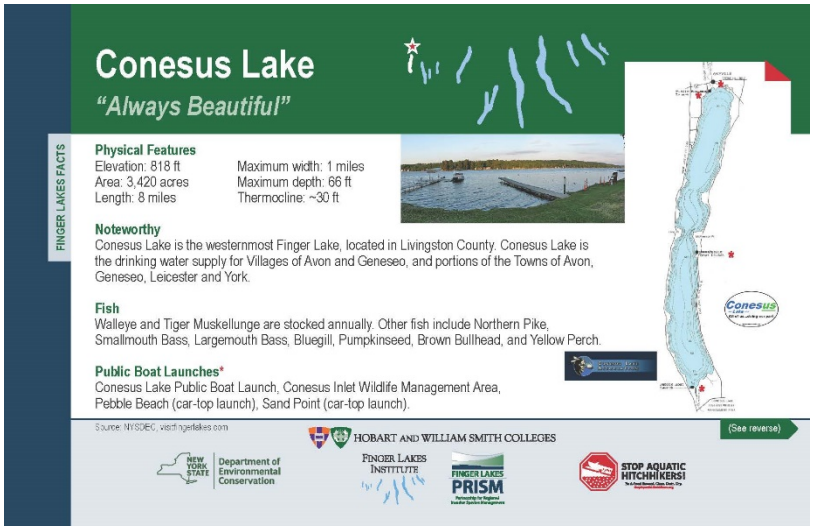
- Developed a Lake Rakers hydrilla monitoring team – October 2019. This new group reports in regularly. We have three lake rake models from FLI and other sources (via an FLI minigrant), and FLI's hydrilla collection kits, to get to new volunteers in 2020. Fifteen people in 2019.
- Worked with the Glorious Trashbirds and other south-end paddling groups to hold a paddle craft Hydrilla Hunt in Ithaca's Cayuga Inlet, October. Ten people participated.
- Worked with FLI/FL PRISM to promote invasive species education online and at events. Got new invasive species swag in 2019 – also t-shirts and caps! Thanks FLI/FL PRISM!

- Conducted two water chestnut removal expeditions by kayak, paddleboard and rowboat on the Ithaca Reservoir, summer of 2019. Organized by Michelle Henry under sponsorship of Roxy Johnston and Ithaca Water Plant. About ten people per expedition.
- Three-day and night hydrilla info blitz held at the public launch, Myers Park, Lansing from September 6-8 to warn participants in a fishing derby that hydrilla had been found at the nearby marina. Network members, staff and Watercraft Stewards from the Finger Lakes Institute worked together almost around the clock to get the "Clean, Drain, Dry" message out. About ten volunteers and 40 boats.
- Season-end meeting held at Wells College on November 7 to report out about hydrilla around Cayuga Lake in 2019. Fifteen people attended. Thank you Wells College sustainability program!
- Working with Hydrilla Task Force (sponsored by Tompkins County SWCD), US ACE, FLI, and others to share lakewide information about hydrilla spread and response, in letter and follow-up to 20 lakefront municipalities. March – April 2020. The Task Force has an estimated 12 people as the active core.

Conesus Lake

Conesus Lake Association Invasive Species Activities, April 1, 2019 to March 31, 2020

The following is a summary of 2019 invasive species activities supported by Livingston County partners, including Livingston County Planning Department, Livingston County Department of Health, SUNY Geneseo, SUNY Brockport. The hours invested in the Watershed Education Center Presentations represent all partners involved, including CLA.



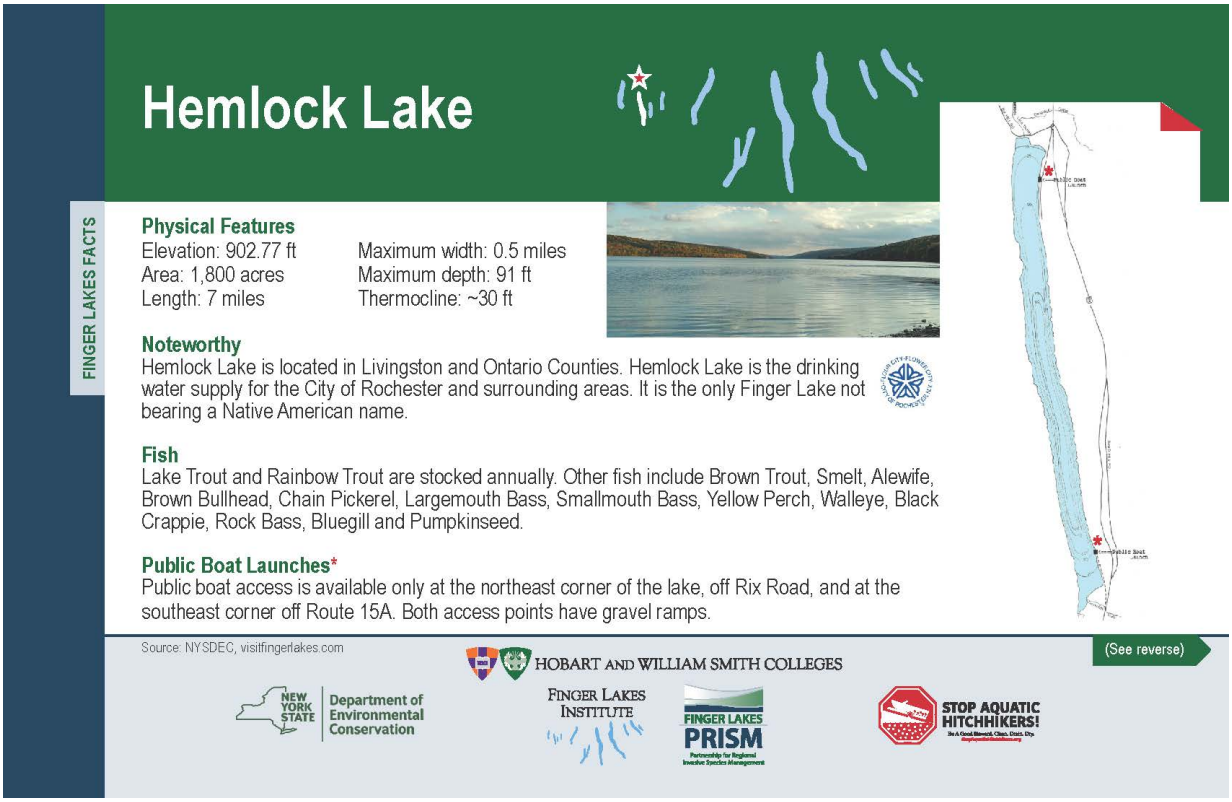
- SUNY Geneseo & SUNY Brockport Conesus Lake Summer Monitoring Program, (IS portion, 6 hrs)
- Invasive species identification & surveillance – (15 hours)
    - Watershed Manager/Watershed Inspector plant identification responses
    - Grant proposal for drone & underwater camera
- Invasive Species Grants (6 hours)
    - Support provided to NY Green for HWA grant, SUNY Brockport MAM grant
- IS Public Education (135 hours)
    - Printing & distribution of FL PRISM Invasive Species Field Guide
    - ISAW Walk & Talk Event
        - 2 volunteers, 13 attendees
    - Watershed Education Center Presentations

- 5 Invasive species presentations, 179 participants, 8 speakers
- Managed by the Watershed Education Center Committee (CLA volunteers and Livingston County: Planning and Health Departments, Cornell Cooperative Extension)

•The CLA activity during this period was primarily volunteer labor; the estimated hours are from CLA volunteers. The CLA expense was not significant.

•No hours or cost has been included for the (3) non-paid guest speakers, or staff time from local partners - Livingston County: Planning Department, Department of Health, and Cornell Cooperative Extension.

Hemlock Lake



Honeoye Lake

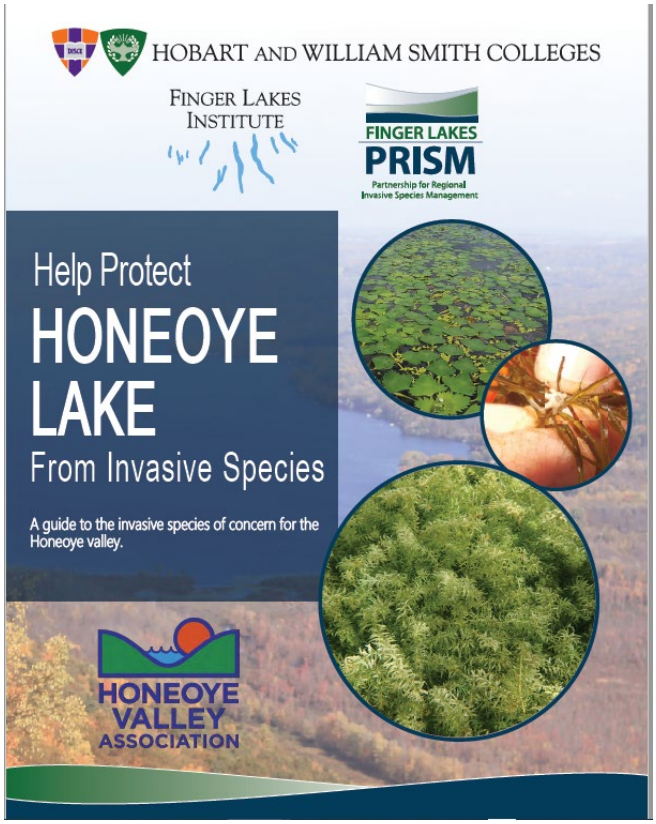
The Honeoye Valley Association Invasive Species Report, April 1, 2019- March 31, 2019.

We had two AIS projects for Honeoye Lake in 2019:

1. Volunteers made two (June & August) macrophyte Rake Toss Surveys at serval locations in Honeoye Lake. No new macrophyte invasive species were found.

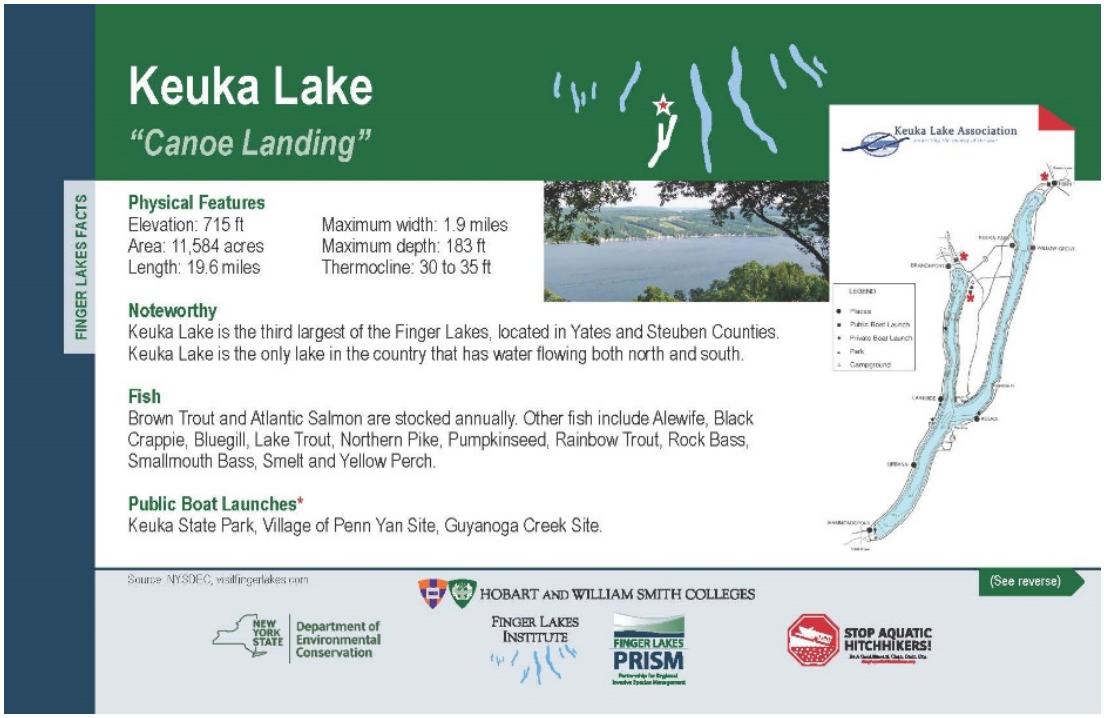
2. The HVA received an FLI AIS Mini Grant for the attached Invasive Species outreach booklet which was mailed to about 900 Honeoye Lake residents that live within 500 feet of Honeoye Lake.

3. A water chestnut plant was discovered in Sandy Bottom Park area by a kayaker. Before a GPS or pictures could be verified, the plant disappeared- likely by a concerned Finger Lakes PRISM stakeholder! Early detection and rapid response at its finest!



4. Bruce Gilman and Scott Harris (the Richmond groundskeeper) cut purple loosestrife from the lake outlet in Sandy Bottom Park. We will check the area again this summer.

Keuka Lake


FINGER LAKES FACTS
Keuka Lake
"Canoe Landing"
Physical Features
Elevation: 715 ft
Area: 11,584 acres
Length: 19.6 miles
Maximum width: 1.9 miles
Maximum depth: 183 ft
Thermocline: 30 to 35 ft
Noteworthy
Keuka Lake is the third largest of the Finger Lakes, located in Yates and Steuben Counties. Keuka Lake is the only lake in the country that has water flowing both north and south.
Fish
Brown Trout and Atlantic Salmon are stocked annually. Other fish include Alewife, Black Crappie, Bluegill, Lake Trout, Northern Pike, Pumpkinseed, Rainbow Trout, Rock Bass, Smallmouth Bass, Smelt and Yellow Perch.
Public Boat Launches*
Keuka State Park, Village of Penn Yan Site, Guyanoga Creek Site.
Keuka Lake Association
Source: NYSDEC, visitfingerlakes.com
(See reverse)
HOBART AND WILLIAM SMITH COLLEGES
NEW YORK STATE Department of Environmental Conservation
FINGER LAKES INSTITUTE
FINGER LAKES PRISM
STOP AQUATIC HITCHHIKERS!

Keuka Lake Association
Watercraft Steward Program 2019

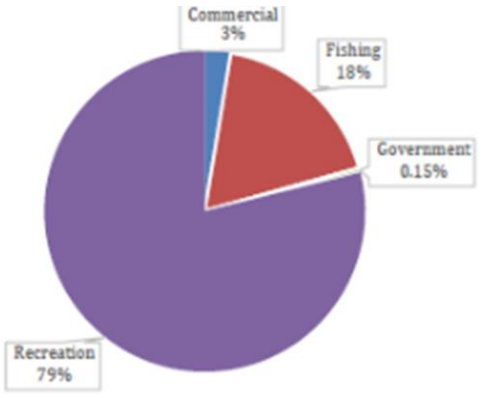
Clean, Drain, Dry!

The KLA WSP hired 3 full-time stewards to provide inspections and educational outreach at the highest activity launches on Keuka Lake & Keuka Outlet, covering 2 counties – Yates and Steuben. Stewards also provided educational outreach at paddling events held at the Finger Lakes Museum to discuss and demonstrate clean, drain, dry procedures to kayak and canoe users.

During the 2019 season a total of **7,811 watercrafts** were inspected and **17,603 individuals** were encountered. A total of 854 organisms were removed from watercrafts: **353 or 41%, were aquatic invasive species.** AIS organisms removed included curly-leaved pondweed, Eurasian milfoil, variable leaf milfoil, quagga mussel, zebra mussel, and starry stonewort.

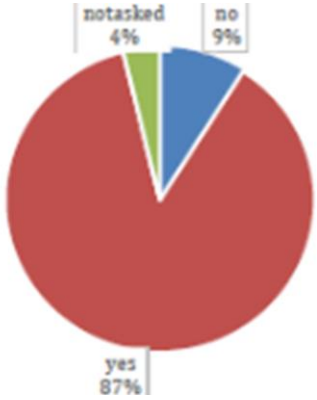
Watercraft User Activity

May to October 2019



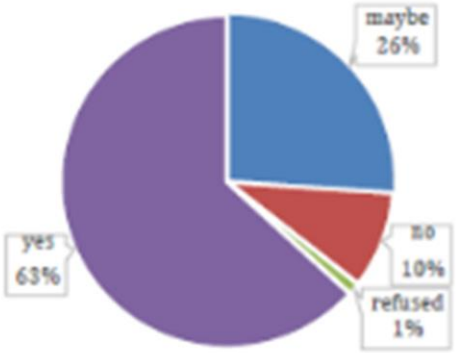
Watercraft User Previous Encounter with a Steward?

May to October 2019



Watercraft User Response: Can we depend on you to Clean, Drain, Dry when no steward is present?

May to October 2019



For more information, visit KLA's website!

keukalakeassociation.org

Follow us on Facebook!

Program Director: Laura Bailey, Cornell Cooperative Extension Yates County, Natural Resources Educator, lb698@cornell.edu

Master Forest Owner Program - Northwest Region

Regional Director: Laura Bailey, CCE Yates County, Natural Resources Educator

Follow us on Facebook!

Erie, Genesee, Niagara, Ontario, Orleans, Livingston, Monroe, Seneca, Wayne, Wyoming, Yates

Highlights from 2018-2019: *[to request a copy of the full annual report, send an email to lb698@cornell.edu]*

CCE Erie County

- Erie County has 208,700 forested acres of which 196,400 acres are private (94%)
- 4 MFO volunteers
- MFO requests and/or visits in 2018-2019: 3
- Assisted with woods walk highlighting the mid-stage of a forest regeneration project organized and hosted by New York Forest Owner Association (NYFOA) in Springville (10/13/18)
- Laura spoke about the MFO program at a Women in Agriculture Voices, Empowerment, Skills (WAVES) discussion group at Gabel's Maple Syrup Sugar Shack in Lawtons (6/24/19)

CCE Livingston County

- Livingston County has 155,300 forested acres of which 150,300 is privately owned (97%)
- 3 MFO volunteers
- MFO requests and/or visits in 2018-2019: 1
- Workshop and Woods Walk: *Hydrologic Connections between Forest and Wetland Ecosystems* in partnership with Livonia High School's ESF in the Classroom program (10/26/19)

CCE Monroe County

- Monroe County has 109,300 forested acres of which 89,900 is private (82%)
- 7 MFO volunteers – new volunteer joined in 2019
- MFO requests and/or visits in 2018-2019: 4
- Workshop and Walk: *Discovering the Woods and Wildlife Around You* held at Seneca Park and the Wegman Lodge in Rochester with the generous support of Monroe County Parks and NYFOA (5/19/19)

★ Brittany Lagaly from FL-PRISM presented on IS!

CCE Ontario County

- Ontario County has 196,000 forested acres of which 194,200 are privately owned (almost 100%)
- 5 MFO volunteers
- MFO requests and/or visits in 2018-2019: 2
- Workshop and Woods Walk: *Woodlot Management Planning – ecosystem and watershed considerations* held at the Naples Library and Camp Cutler, BSA (4/27/19)

★ Brittany Lagaly from FL-PRISM presented on IS!

CCE Seneca County

- Seneca County is combined with Cayuga County for forest ownership data: the two counties combined have 222,900 forested acres of which 197,600 is privately owned (89%)
- 1 MFO volunteer and the continued assistance from a volunteer who moved to a different county in the region
- MFO requests and/or visits in 2018-2019: 2
- Workshop and Woods Walk: *What is the MFO Program?* held at the Seneca County CCE office in Waterloo and at the woodlot of CCE Seneca Horticulture Program Educator, Patti Paine (6/8/19)

★ Brittany Lagaly from FL-PRISM!

CCE Wyoming County

- Wyoming County has 153,900 forested acres, of which 138,800 is privately owned (90%)
- 3 MFO volunteers
- MFO requests and/or visits in 2018-2019: 2
- Workshop and Woods Walk: *Responding to the Presence of Emerald Ah Borer (EAB) in Your Woodlot* held at the woodlot of CCE Wyoming Agriculture Community Educator, Don Gasiewicz in Varysburg (10/12/19)

★ Invasive species topic!

CCE Yates County

- Yates County has 100,500 acres of forested land, of which 97,800 acres is privately owned (97%)
- 5 MFO volunteers
- MFO requests and/or visits in 2018-2019: 12
- Laura coordinates monthly meetings of the Yates MFO volunteers (the Yates MFO volunteers have been meeting monthly for years)
- Workshop: *Incorporating Wildlife Habitat Improvement Projects and Practices into Your Woodlot Activities* held at the Yates County Building in Penn Yan (3/30/19)
- Refresher Training and Woods Walk: *Releasing Wild Apple Trees and Crop Tree Management* held at the woodlot of MFO volunteers, Charlie and Sarah Stackhouse, in Bluff Point (9/7/19)

★ Patty Wakefield-Brown from FL-PRISM presented on IS!

Otisco Lake

Otisco Lake Report

We are in the third & final year of our invasive species identification grant. It will finish up this July. We have identified two major invasive species: milfoil and curly-leaf pondweed. We were able to show that we have no new invasive species including the bloody-red shrimp or starry stonewort

We are in the process of developing our 9-element plan through Bill Ayling, a member of our board.

We continue to do an annual water chestnut pull to control the two areas of water chestnut that have been previously identified. This event is entering its ninth year and has had a great effect on controlling the water chestnuts in our lake.

We're working with the Finger Lakes Land Trust to continue to preserve shoreline. They have a purchase offer in on a large track of land at the south end of the lake. We hope to have this used as an educational area in the future. The purchase of the property is in coordination with Onondaga County & the Land Trust.

We have a two-year grant starting this year to continue our stewardship program. Our program is in coordination with the Finger Lakes Institute who employs the stewards working at our lake launches.

A new launch has been added by the DEC at the south end of the lake. Construction should be completed towards mid-summer. Completion has been delayed due to the Pandemic.

We also hope to develop stream identification and runoff, possibly look at settling ponds prior to the runoff entering the lake.

Program Highlights

http://otiscolakepreservation.org

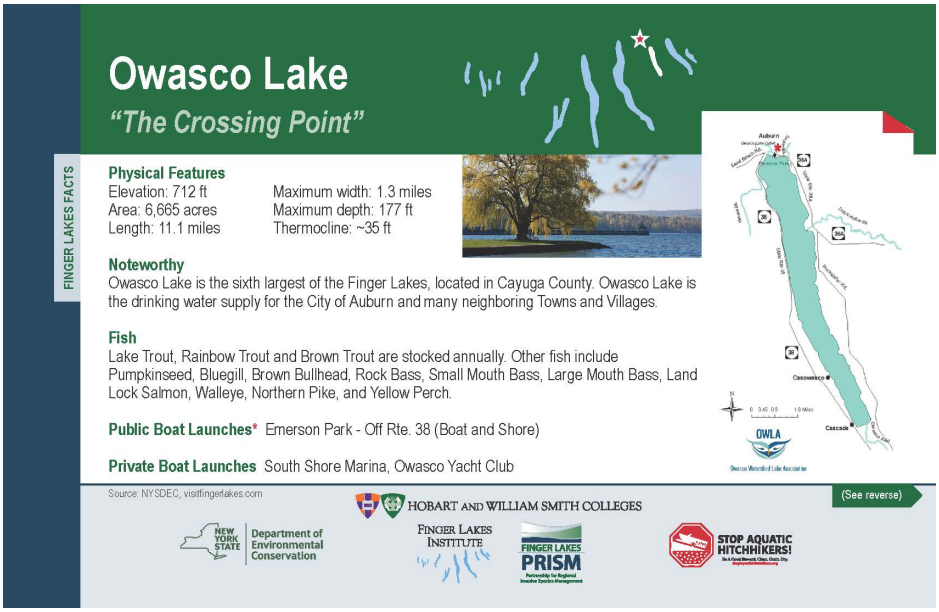
- DEC IS Identification Grant – 3rd & final year
- Water Chestnut Pull – 9th year
- Annual Meeting – Runoff Control, IS Grant Report
- Adding steward to new DEC Boat Launch

 Wash Station Research & Development – partnering with Onondaga County Water Authority

Amount spent on IS: $22,000
Volunteer hours: 70 hours (no permanent staff)
Invasive Species Trainings: 1; 14 participants
Invasive Species Presentations: 1; 80 participants (Annual Meeting)

Owasco Lake

Owasco Lake is plagued by aquatic invasives. Perhaps top on our list are quagga mussels (given their apparent symbiotic relationship with cyanobacteria) and starry stonewort. Both are prevalent across all of the lake bottom. We have researched this and have found no reasonable resolution. All we can think to do is try to minimize introduction of yet more invasives. This is done through public education and the Watercraft Inspection Program.



*** According to PRISM, the invasive species in Owasco Lake species are as displayed on their website: http://fingerlakesinvasives.org/wp-content/uploads/2015/01/Owasco-Lake-pub.pdf

*** Drew Snell of the Owasco Lake Watershed Inspection & Protection Division distributed invasive species posters which were developed by FLI and PRISM. Drew has supplied over 20 of these permanent educational signs for public display in boat traffic areas and businesses related to lake activities.

**** Watercraft Inspection Program continued on Owasco Lake. Sam Beck-Anderson (FLI) reported the 2019 inspections on Owasco Lake as follows:

Total inspections at Emerson Park - 1737

Inspections with invasives found - 66

Percent of "failed" inspections - 3.8%

We also sometimes break this down to only include boats launching into a waterbody, as opposed to boats leaving a waterbody. This can give you a better idea of what percentage of launches are "risky" in terms of introducing new species. While finding an invasive species on a boat leaving Owasco Lake is certainly important for our cause, it may not pose a direct threat to that lake since any invasives found during the inspection are already found in the lake. So, this figure, in some ways can give you an idea of how many "risky" launches occur on your waterbody.

So, for launching boats:

Total inspections at Emerson Park - 1051

Inspections wit invasives found - 9

Percent of "failed" inspections - .9%

*** There are attempts to control zebra and quagga mussels by exposing them to freezing cold temperatures by lowering the Owasco Lake water levels by approximately three feet during the winter season.

***

The Owasco Watershed Lake Association conducts monthly public meetings to inform and educate the public concerning lake conditions. A recent meeting was announced in the Auburn Citizen newspaper as follows:

“The Starry Stonewort Collaborative – A Regional Approach to Understanding an Aggressive Aquatic Invader” by David Carr.

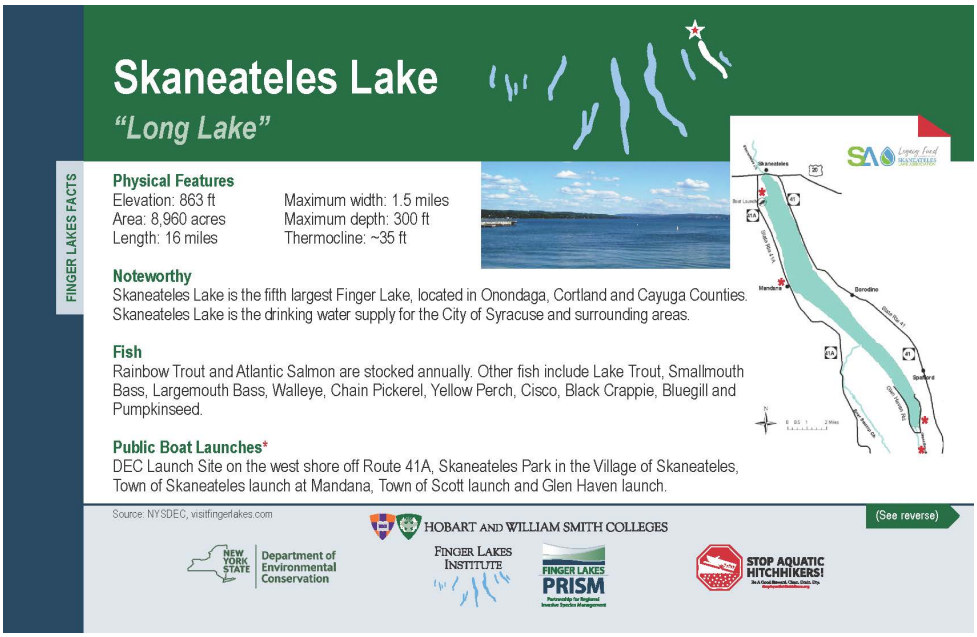
Mr. Carr is a Project Manager at the Finger Lakes Institute and discussed this Great Lakes-wide program (including the Finger Lakes) and the importance of addressing invasive species.

Seneca Lake

Seneca Lake Pure Waters Association ("SLPWA")
Invasive Management Program
Website: senecalake.org
Email: kaitlin@senecalake.org
Jake Welch, President
Dan Corbett, VP and Invasive Program Lead for 2020
Rich Adams, 2019 Program Lead

- Began Invasive Management Program in 2019, and are doing strategic planning to build it into one of our priority core programs
- Trained and equipped 12 volunteer aquatic macrophyte observers ("rake throwers") at FLI PRISM "basic training" in summer 2019. Volunteers roughly cover the entire perimeter of the lake. Approximately 40 hours of training in total.
- 12 observers conducted approximately 200 hours doing bi-weekly rake throws and reporting through the PRISM system.
- Program Leads spent approximately 30 hours on program management, grant prep, additional training at FLI and at Canandaigua training center
- Helped PRISM obtain $1300 grant for material to build invasive plant disposal boxes and to equip 2 volunteer assist Watercraft Stewardship stations at busy boat launches.
- Hosted an Invasive Management table at SLPWA fall 2019 Water Quality and HAB conference, at Hobart William Smith.
- Planned expansion of program in 2020, 2021
    - Increase number of macrophyte observers to more fully cover the lake, and train accordingly with PRISM.
    - As affordable, or dependent upon grants, assist PRISM in providing additional Watercraft Stewards, to be deployed at key boat launches.
    - Expand the reach of the program to terrestrial invasives, by interfacing the program with SLPWA's 2020 launch of a Lake Friendly Living program, an initiative aimed at environmentally smart homeowner, commercial, and urban land management practices.
    - Take advantage of all PRISM training opportunities
    - Highlight and/or feature the Invasive Management program at outreach and other community events and outings (as allowable under the COVID restrictions) to educate our general membership and the public, and to generate interest for increased memberships.
    - Actively partner with other Lake Associations who have more developed programs (Canandaigua, Keuka, and Cayuga) to help build our program, and to do shared outreach.

Skaneateles Lake



US Forest Service projects funded through the Great Lakes Restoration Initiative in Finger Lakes region					
Project Title	Project Description	Appropriation Year	Measurable (Goal or Target)	Actual Accomplishments	Percent Complete
Ganondagan Guardians restore the resiliency of an historically significant site for the Seneca Nation	Survey, control, and restore a culturally significant site. The project will re-establish 60-acres to grasslands with native warm-season grasses based on entries from the Seneca Nation in the late 17th century.	2015	200 acres mapped for invasive species in conservation target areas; 25 acres controlled mechanically for invasive species that impact water quality on Ganondagan Historic Site; 60 acres restored to native grassland that will increase water quality on Ganondagan Historic Site; 20 acres restored to native flora in conservation target areas on Ganondagan Historic Site; 25 acres chemically controlled for invasive species that impact water quality on Ganondagan Historic Site	250 acres mapped; 60 acres controlled mechanically for invasive species that impact water quality on Ganondagan Historic Site; 60 acres restored to native grassland that will increase water quality on Ganondagan Historic Site; 40 acres restored to native flora in conservation target areas on Ganondagan Historic Site; 27 acres chemically controlled for invasive species that impact water quality on Ganondagan Historic Site	100%
Finger Lakes National Forest Invasive Species Roundup	Finger Lakes National Forest Invasive Species Roundup	2016	72 acres controlled for invasive species that impact water quality on the FLNF; 15 acres planted with native flora in conservation target areas on FLNF; 15 acres assessed post-treatment for treatment efficacy; 30 miles of trail mapped for invasive species in conservation target areas (those with potential to impact water quality)	30.02 acres controlled for invasive species that impact water quality on the FLNF; 30 miles of trail mapped for invasive species in conservation target areas (those with potential to impact water quality)	45%

Grassland and Floodplain Forest Restoration on Ganondagan State Historic Site	Grassland and Floodplain Forest Restoration on Ganondagan State Historic Site	2016	100 acres surveyed and mapped for invasive species; 100 acres manually or mechanically controlled for invasive species that impact water quality; 30 acres chemically controlled for invasive species that impact water quality; 100 acres of floodplain forest, wetlands and adjacent uplands restored; 30 acres of grassland restored that will improve water quality; 40 acres restored using native flora in conservation target areas	100 acres surveyed; 160 acres manually or mechanically controlled for invasive species that impact water quality; 40 acres chemically controlled for invasive species that impact water quality; 75 acres of floodplain forest, wetlands and adjacent uplands restored that will improve water quality; 79 acres of grassland restored that will improve water quality; 40 acres restored using native flora in conservation target areas	95%
Detecting, Preventing, and Controlling Highly Invasive Species	Detect, prevent, and control IS on 15 miles of trail at RMSC's Cumming Nature Center	2017	15 miles of trail and 300 acres surveyed and mapped with iMap Invasives & ARCGIS; 99 acres controlled for invasive species that impact water quality at CNC; 15 acres seeded with native flora; 99 acres assessed post-treatment for efficacy	12.8 miles of trail surveyed and 3.40 acres of invasive species treated along trailways using herbicide.	20%

Conclusion

The 2019-2020 year was an extraordinary year with engagement from hundreds of individuals, organizations, and municipalities. While there still is much work to be done, we are proud of the accomplishments of our partners and network, we've leveraged funds and identified gaps in survey. This coming season will see additional citizen science programs with the launch of our Finger Lakes Institute Trail Survey as a sister program to the Finger Lakes Institute's Macrophyte survey. And, while the 2020-2021 season will look different than anything else we know, we are flexible and ready to see the opportunities that exist in online forums and social distancing programs. Cheers to another year!

Finger Lakes PRISM fall 2019 full partner meeting. Thank you for your support!!

Prepared by Hilary R. Mosher, Finger Lakes PRISM Coordinator