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**State:** Ohio

**Grant Title:** F21AS00306 (Lake Erie)

**Report Type:** Final Performance Report

**Date:** February 3, 2023

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### Final Summary

Our project team carried out an early detection and rapid response plan to address aquatic invasive plant species (AIS) in Ohio's Lake Erie Basin in 2022 with funding from the Ohio Department of Natural Resources and the U.S. Fish and Wildlife Service. The project, now in its sixth year, is a continuation of Early Detection and Rapid Response to AIS in Ohio's Lake Erie Basin GLRI grant work from 2016-2018 (GL- 00E01923) and aquatic invasive species (AIS) grant work from 2019-2021. In 2022, the AIS Project Coordinator and seasonal crew (2) surveyed 85 sites, covering 1,415 acres of lakes, ponds, and wetlands in Ohio's Lake Erie Basin. We created species lists, estimated percent coverage, and mapped infestations for partners. We collected distribution and abundance data on 18 aquatic invasive plants. A master list of plant data was delivered to the USGS Non-indigenous Aquatic Species (NAS) database. Distribution and abundance data of aquatic invasive plants will add valuable records to the state of Ohio and assist with risk assessments and future modeling. We also observed three state-listed, native species in Ohio, including the endangered *Nuphar variegata* in the Ashtabula River. The Park District facilitated all treatment and monitoring of *Hydrilla verticillata* (Hydrilla) in Cleveland Metroparks and completed annual tuber bank and vegetation sampling in waterbodies totaling 29 acres. Cleveland Metroparks was awarded the first Great Lakes Landing Blitz for Ohio which increased project reach with staff at boat ramps and enabled development of educational materials. Cleveland Metroparks supported outreach across the state and printed 200 Hydrilla signs with reporting pathways, hosted a training for all Ohio Department of Natural Resources (ODNR) staff, and coordinated Eurasian watermilfoil (*Myriophyllum spicatum*) samples sent to the University of Montana for genetic analysis. The Park District also assisted Old Woman Creek National Estuary and Pymatuning State Park staff with European frogbit (*Hydrocharis morsus-ranae*) removal, and prepared management plans for Hydrilla in Ohio. The project team was directly involved with ten aquatic invasive species management events in the Lake Erie Basin and worked with over 30 partners. The team worked with two landowners to manage AIS of high concern on private properties. A total of forty-six (46) plant vouchers were collected and deposited at Cleveland Metroparks herbarium and 26 plants were donated to the Kent State herbarium. More than 1,260 people were reached through 28 AIS outreach events. Overall, this project better prepares Ohio's Lake Erie Basin for aquatic invasive species detection and expands control efforts. The project will continue in 2023 with funding from Ohio Department of Natural Resources and U.S. Fish and Wildlife Service via the Great Lakes Restoration Initiative. In 2022, the project also administered funds that enabled staff time and AIS management activities to occur in the Ohio River Watershed. A separate report to ODNR with the same categories details this work under grant number F20AP11511.

Cleveland Metroparks, as a recipient of funds from ODNR, assists with implementation of the State Management Plan in Ohio's Lake Erie Basin. The following objectives are part of the Ohio Department of Natural Resources State Management Plan for Aquatic Invasive Species (2014) and contributions from the 2022 Grant Project F21AS00306 Early Detection and Rapid Response to Aquatic Invasive Plants of Concern in Ohio's Lake Erie Basin are detailed below.

### **Discussion of Five Objective Areas and Accomplishments**

Describe the tasks completed and the progress made towards the goals of the grant.

#### **Objective 1: Leadership in Aquatic Invasive Species**

##### a. Coordinate Ohio Aquatic Invasive Species Committee (OAISC) to address AIS (plant) issues in Ohio

Cleveland Metroparks (CM) AIS Project Coordinator presented three topics to the Ohio AIS Committee: an update on Aquatic Invasive Plants on May 13, and an update on Alum Creek Lake Hydrilla management efforts and an update on ProcellaCOR trials on December 20.

The partnerships with Ohio Aquatic Invasive Species Committee members are ongoing.

##### b. Allocation of funding to high priority programs

In 2022, staff prioritized waterbodies near known AIS infestations. Sites were assessed for accessibility, recreational interest, size, and importance in Ohio. Funding allowed for Hydrilla, yellow floating heart, and European frogbit management in Ohio's Lake Erie Basin.

Research programs supported with staff time include:

- Collected and shipped 106 Eurasian watermilfoil samples from three waterbodies to University of Montana for genetic study project. Sites include Lake Erie marinas (3), Chippewa Lake in Medina County, and in Trumbull County Mosquito Creek Lake. The Project Coordinator also recruited other agencies like ODNR, private contractors, and the Pennsylvania Department of Conservation and Natural Resources to submit samples.
- Completed the Ohio Invasive Plants Council's Small Research Grant for ProcellaCOR trials.

Cleveland Metroparks continued to respond to high priority invasive plants in Ohio's Lake Erie Basin in 2022. Plants and projects that received support include:

- 1) Hydrilla continues to be a big investment of time and energy for the project crew. No new Hydrilla detections were observed in 2022 in Ohio's Lake Erie Basin and management continued at known infestations. Medina County has three waterbodies with Hydrilla and two of three were managed in 2022. One private property was treated with fluridone (6 parts per billion), Medina County Park District treated Hydrilla with fluridone at 6 parts per billion target rate. The third, a private landowner, was unreachable. Medina County Park District continues to manage for Hydrilla using the best management practices provided by Cleveland Metroparks. Tuber sampling continued at all known Hydrilla waterbodies in Ohio's Lake Erie Basin. Cleveland Metroparks will continue to manage AIS on private property in 2023 as grant funds permit. No Hydrilla regrowth was observed in CM at any of the five waterbodies. Staff time, including the Project Coordinator's, was spent on Hydrilla management at Alum Creek Lake and Mosquito Lake in 2022, as detailed in the separate grant report for the Ohio River F20AP11511.

- 2) Two infestations of Brazilian waterweed (*Egeria densa*) remain untreated in Ohio's Lake Erie Basin and should be managed in 2023. Staff reconfirmed presence in 2022.
- 3) Flowering Rush (*Butomus umbellatus*) was search for in CM, especially at Wendy Park and Bradley Woods, where past infestations have been detected. A research partnership between the Cleveland Museum of Natural History and the United States Army Corps of Engineers continued in 2022. Other populations of flowering rush were documented, but not treated.
- 4) European frogbit (*Hydrocharis morsus-ranae*) – CM assisted Old Woman Creek and partners in Pennsylvania with hand pulling efforts. Provided advice to Lorain County Metro Parks on EFB management, supported the EFB collaborative by attending meetings and volunteering for the education and outreach working group. The Project Coordinator recommended individuals for the EFB Collaborative's steering committee.
- 5) Yellow floating heart (*Nymphoides peltata*) – using a small research grant from Ohio Invasive Plants Council, Cleveland Metroparks managed a population at a private property in Lorain County in 2022. The private property is scheduled for treatment again in 2023. Excess herbicide from the study will enable additional treatments of yellow floating heart and other AIS.

Seasonal employee hours were increased via the Great Lakes Landing Blitz grant by 80 hours. The additional time enabled increased outreach efforts and enhanced the early detection and rapid response capabilities of the team.

c. Partner with AIS management programs in nearby states

The project coordinator presented on Hydrilla detection and management to the Great Lakes Commission surveillance meeting on February 23, 2022. In August, project staff participated in a aquatic plant survey of the Ashtabula River, coordinated by Michigan contractors from The Nature Conservancy. Cleveland Metroparks continues to support the Great Lakes Commission and The Nature Conservancy with early detection efforts and AIS research.

Both project coordinator and seasonal staff presented on aquatic invasive plants at Pennsylvania's inaugural Plant Camp for Educators. Ohio educators were invited but none attended this year. Plant Camp will take place again on August 1, 2023.

Cleveland Metroparks participated in a European frogbit (EFB) pull with Pymatuning State Parks and recruited Ohio members for EFB steering committee hosted by Michigan Environment, Great Lakes, and Energy Department (EGLE).

The project crew advocated for other Ohio managers to collect and ship Hydrilla to Texas as part of an USACEResearch and Development Center (ERDC) research project. The crew directly collected and shipped over 100 Eurasian watermilfoil (*Myriophyllum spicatum*) samples to Montana State University to build the database for genetic variation and vulnerabilities to herbicides.

**Objective 2: Prevention of the spread of Aquatic Invasive Plants in Ohio's Lake Erie Basin**

d. ID and rank by short and long-term risk species of concern, risk assessment of introductions, species in USA but not yet known in Ohio

Cleveland Metroparks updated the list of aquatic invasive plants of concern in Ohio. Lists were distributed electronically as part of outreach to partners like Franklin, Lorain, and Medina County Park

Districts. Hard copies of species of concern lists were included in the 12 Detection and Decontamination kits that were sent to partners around the state of Ohio. Recipients include: The USACE of Engineers Pittsburgh and Huntington Districts, Great Parks of Hamilton County, Mill Creek MetroParks, ODNR State Parks at Alum Creek Lake and Mosquito Lake, and six kits to ODNR Division of Wildlife for all district offices plus headquarters.

Cleveland Metroparks followed two reports to help prioritize AIS: the Ohio Guide to Aquatic Invasive Species and the technical report, “Current and potential aquatic invasive species in Ontario and the Great Lakes region: A compilation of ecological information” by Hatton et al. 2019, as a catch-all AIS watch list for Ohio’s Lake Erie Basin. The Park District follows the Ohio Department of Natural Resources guidelines on response criteria in the Rapid Response Plan for Aquatic Invasive Species (2014).

Cleveland Metroparks took steps to confirm a suspected exotic plant and sent samples for genetic analysis to Montana. It came back as a variety of *Potamogeton nodosus*, a plant that is native in Ohio, and common globally. It is possible that some species have been moved around, selected by the aquatic plant trade for exotic-looking traits.

Survey efforts, like in years past, have prioritized waterbodies near known infestations.

- e. ID risks and potential pathways for high potential species, prioritize those areas for research and control efforts

At sites with priority species, preventing external spread is often the primary goal. For instance, boat ramps at waterbodies with Hydrilla are the first sites on the list for management and monitoring. To help prevent spread, ODNR staff changed the way they sample – using site-specific equipment for AIS-infested waterbodies and cleaning all their materials between surveys.

Major risk pathways include online sale of aquatic plants, sale at brick-and-mortar facilities, and the transmission of AIS by human and animal vectors. Two aquatic supply stores were visited in 2022 to assess the availability of AIS and provide outreach material to store owners. Additionally, after photos were posted online depicting suspected contamination by Hydrilla, Cleveland Metroparks purchased 10 bundles of *Elodea canadensis* and verified that, for one order, contamination did not occur.

To raise awareness about AIS spread through human activity and promote prevention actions, Cleveland Metroparks participated in the Great Lake Landing Blitz for AIS. Natural Resources and Outdoor Experiences staff teamed up and distributed outreach materials at boat ramps and staffed 8 different events which had outreach to over 329 boaters, anglers, and paddle sport enthusiasts. As mentioned previously, kits with identification resources, survey equipment, and decontamination supplies were sent to public agencies around Ohio, with funding provided by the Great Lakes Landing Blitz.

We developed one-page fact sheets on six species of concern: Hydrilla (*Hydrilla verticillata*), Eurasian water milfoil (*Myriophyllum spicatum*), yellow floating heart (*Nymphoides peltata*), flowering rush (*Butomus umbellatus*), European frog-bit (*Hydrocharis morsus-ranae*), and starry stonewort (*Nitella obtusa*).

The Project Coordinator is concerned about Hydrilla spread from the Ohio River to the Lake Erie Basin. Mosquito Lake and Alum Creek Lake are large, public waterbodies that present a risk for moving species from one spot to another. Ohio lags some of the other Great Lakes states when it comes to investment in AIS spread prevention

f. Evaluate effectiveness of existing tools. Develop and implement to reduce likelihood of introduction from high risk pathways

In 2022, eDNA investigation was halted and money was diverted to herbicide residue testing. There were supply chain issues that resulted in a switch from the preferred service lab for residue testing to the herbicide manufacturer's (SePro) lab.

The Park District created and distributed 12 aquatic invasive plant detection and decontamination kits to partners including: US Army Corps of Engineers Huntington and Pittsburgh District offices, Alum Creek Lake and Mosquito Creek Lake State Parks Staff, Great Parks of Hamilton County, Mill Creek Metroparks, and six kits to the Ohio Department of Natural Resources Division of Wildlife offices. Materials in the kits include guidebooks, priority aquatic plants to look out for, and decontamination supplies.

In 2023, program staff will participate in the Regional Aquatic Plant Control Prioritization Workshop hosted by the Great Lakes Commission on January 24 & 25, and the GLRI supported workshop on Best Practices for Early Detection of Invasive Aquatic Plants on February 7.

In the future, low-flight drone photography may assist with plant patch detection and photos may aid in species identification. Cleveland Metroparks Planning and Design staff assisted the project crew with drone imagery in 2021. No actions were taken on remote sensing with drones in 2022, but plans are in place to resume in 2023 to continue to develop techniques and improve detection results.

Methods for early detection remained the same. Rake tosses – two hard garden rake heads clamped together and attached to 50 foot ropes were tossed three times in different directions from the banks, from kayaks, and from survey boats. Priority locations included inflow, outflow, boat ramps, shallow areas, fishing piers, and places our partners identified. Routes were mapped using Garmin handheld GPS units (GPSMAP64) and processed on QGIS to include tracks and locations of rake tosses. Surveys took anywhere from all day to less than 30 minutes depending on the site, accessibility, and need for expediency. Survey methods successfully detected an infestation of Hydrilla at Mosquito Creek Lake, estimated to have been introduced 2-4 years ago based on coverage. As in years past, the coordinator used kayaks, boats provided by partners when available, surveyed in waders, and/or walked the perimeter of waterbodies to survey for AIS.

While the tools for detection are effective and often improving, Ohio's existing tools for prevention may be inadequate to prevent human transport of aquatic invasive plants, including Hydrilla, from one waterbody to another.

Future considerations to increase prevention efforts may include species-specific signage and concrete activities such as boat washing stations, aquatic invasive plant disposal stations, recruitment and training of volunteers to monitor aquatic vegetation communities and water quality, and staff at boat ramps to conduct voluntary AIS boat inspections. Ohio has rich water resources. Preventing the spread of aquatic invasive plants will help keep our public waters wild, resilient, and relevant.

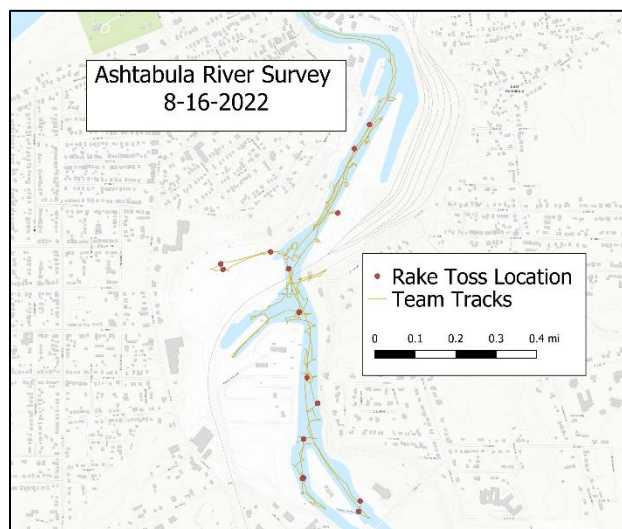


Image 1. Map of a boat survey on the Ashtabula River, Ashtabula County, Ohio. *Nuphar variegata*, a state - endangered plant, was confirmed along the central stretch of river.

g. ID ecologically sensitive areas that are AIS free and work to enhance protection, including educational outreach

In 2022 the project crew prioritized state wildlife areas and public waterbodies near known infestations. State Wildlife Areas surveyed include: the Ashtabula River, Aurora State Nature Preserve, Cuyahoga River, LaDue Reservoir, Mentor Marsh, Resthaven, Sheldon Marsh and Wyandot.

Partners who participated in joint surveys were given outreach materials such as AIS watch cards, a list of aquatic plants of concern in Ohio, and directions on reporting AIS. More kits will be distributed in 2023 as funding and needs permit.

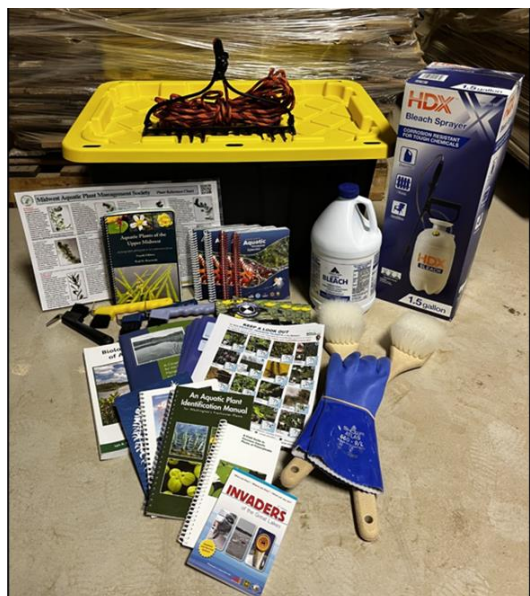


Image 2.. 12 Kits were delivered to partners all around Ohio: six to ODNR Division of Wildlife for District Offices, USACE Pittsburgh and Huntington District Offices, Great Parks of Hamilton County, Mill Creek MetroParks, and Alum and Mosquito Creek Lake ODNR Division of State Parks and Watercraft Staff. Funding came from the Great Lakes Landing Blitz. The kits contain many guide books, educational materials, sampling and light decontamination equipment.

h. Identify BMPs, codes-of-conduct, and potential certification options for key groups

Best Management Practices for AIS management identified in 2022 include:

- ProcellaCOR EC (Florpyrauxifen-benzyl) may be useful in rivers and areas with higher flow as a contact herbicide for Hydrilla control, but more research is needed. Anecdotal evidence suggests that ProcellaCOR SC, a product with 2x the concentration of ProcellaCOR EC, is useful for Hydrilla control in high flow areas in South Carolina, per the Department of Natural Resources. Mosquito and Alum Creek Lakes are good candidates for a trial of ProcellaCOR EC in high flow areas. The Project Coordinator is waiting for guidance from the herbicide manufacturer.
- Drawdowns are still not effective on European frogbit control long term. Research is ongoing on EFB management.
- Yellow floating heart should be treated early in the growing season (June-July), prior to the formation of seed pods which seem less vulnerable to ProcellaCOR. Overall, the herbicide was effective on yellow floating heart with minimal non-target impacts. These conclusions are based on the results of the small research grant provided by the Ohio Invasive Plants Council.
- iNaturalist continues to prove its utility to AIS detection. It is most effective for showy species, such as purple loosestrife and yellow flag iris, though increasingly people are pointing their cameras at submerged aquatic species and uploading records. The Park District identified water hyacinth and water lettuce as reported to iNaturalist at two sites.

Key groups involved in the project in 2022 include:

- US Army Corps of Engineers Huntington and Pittsburgh District. Both were actively involved in planning and their help will be needed to address Hydrilla concerns in Ohio.
- Naturalists from around Ohio were invited to attend an aquatic invasive plant workshop hosted by Cleveland Metroparks in August. Over 50 Educators from six counties attended and their work to educate people will improve the project's reach.
- Ohio Department of Natural Resources State Park Managers and Wildlife Officials were involved in posting Hydrilla awareness signs around Ohio. The signs were removed in 2022 but may return to waterbodies in 2023 with administrator approval at ODNR.

The Project Coordinator is working with ODNR staff to develop consistent, state-wide responses to AIS of concern in Ohio's Lake Erie Basin.

### **Objective 3: Early Detection and Rapid Response**

The Project Coordinator conducted annual surveys for AIS throughout Cleveland Metroparks, including re-surveilling waterbodies and adding new sites when properties were acquired by the Park District. To adhere to the internal long-term Hydrilla management plan, one-third of all Park District waterbodies were surveyed in 2022, based on prioritization of Cleveland Metroparks sites to be surveyed every one to three years. Verbal, written, or formal Right of Entry documents (ROE) were obtained from private and public landowners as needed. These agreements allowed the Project Coordinator to conduct surveys on a diversity of waterbodies, from wetland complexes and small ponds to large lakes and drinking water reservoirs.

Surveys in 2022 covered:

- 40 sites in Cleveland Metroparks, totaling 203 acres
- 48 sites outside of Cleveland Metroparks, totaling 2,837 acres

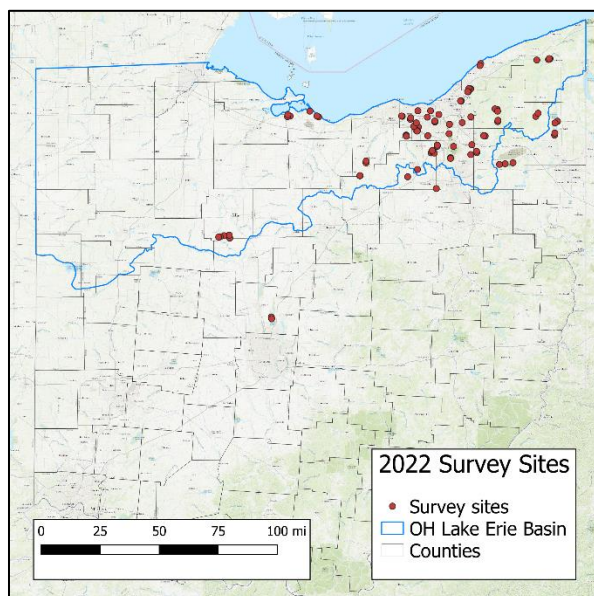


Image 3. Cleveland Metroparks surveyed 88 sites in 2022. Over the course of the six-year project, Cleveland Metroparks has surveyed over 500 waterbodies.

All known Hydrilla populations in Ohio's Lake Erie Basin area are under management.

Other aquatic invasive species (AIS) of concern were encountered during surveys and reported to appropriate land managers. Abundance and distribution information for aquatic invasive plants were submitted directly to the United State Geological Survey Nonindigenous Aquatic Species (USGS-NAS) online database via contractor Ian Pfinsten. Records of AIS were also gathered from iNaturalist, especially the collection project title: Aquatic Invasive Plant Survey (Lake Erie Basin). Several notable observations of showy, invasive species were documented including water lettuce (*Pistia stratiotes*), water hyacinth (*Pontedaria crassipes*) and *Egeria densa*.

i. Develop list of AIS experts for Ohio

Cleveland Metroparks maintains a list of experts who can assess plant records, verify identifications, and provide guidance on management techniques. Project documents, including the list of aquatic plant experts, have been submitted to the Ohio Department of Natural Resources via Microsoft OneDrive.

j. Create master inventory of AIS in Ohio, integrate with USGS NAS

The master inventory of AIS in Ohio is accessible on the USGS NAS website (<https://nas.er.usgs.gov>). The Project Coordinator worked with USGS contractor Ian Pfinsten to add Cleveland Metroparks AIS records and iNaturalist data from 2022. Currently there are 2,824 observations by 1008 observers of 19 different species on the iNaturalist project created to accept records from the Ohio's Lake Erie Basin (<https://www.inaturalist.org/projects/aquatic-invasive-plant-survey-lake-erie-basin>). Independently, USGS collated AIS data from the Early Detection and Distribution Mapping System (EDDMapS). The NAS database is the most authoritative collection of information on AIS abundance and distribution in the U.S.

**Objective 4: Control of Aquatic Invasive Plants in Ohio**

k. Prioritize which AIS to control by both site and species



In accordance with Ohio's AIS response plan, control efforts were initiated after a risk assessment.

In 2022, project staff assisted with 10 management efforts with four different partners:

- 1.) 6/13 – Hydrilla management at Cleveland Metroparks Greathouse Wetlands
- 2.) 6/03 – Old Woman Creek National Estuary European frogbit hand-pull effort
- 3.) 8/08, 8/25, 9/12 – Yellow floating heart treatment efforts at private pond (3 events)
- 4.) 9/20, 9/21 – Water lettuce & water hyacinth hand pull at Strawberry Pond (2 events)
- 5.) 9/20 – Water lettuce & water hyacinth hand pull at NCR oxbow lagoon
- 6.) 5/31 – Hydrilla management with Medina County Park District
- 7.) 6/27 – Private Pond owner in Medina County (2 events) - tubers
- 8.) 8/16 - Hand pull of European frogbit at Pymatuning

I. Evaluate methods of control for efficacy, including incentives and assistance, modifying human behavior

In 2023, the project crew staffed boat ramps and provided outreach material to boaters as part of the Great Lakes Landing Blitz for AIS prevention. The program reached over 329 people and it confirmed that many Ohio boaters are motivated to keep their boats clean which helps keep AIS spread risk low.

The Coordinator developed management proposals and applied herbicide on one private waterbody in Medina County, near a known infestation in Medina County Park District. Two waterbodies on private property in Lorain County with yellow floating heart were also managed in 2022. The ability to subsidize the management cost in full is an important part of making these public/private partnerships a success. Also, conveying the best management practices supported by science, projected outcomes, and natural history of the targeted species is important to convince a partner to act. Cleveland Metroparks will continue to develop relationships with private landowners who have high-concern AIS on their property and subsidize treatment as grant funding permits. The ability to work on private land to reduce risk of AIS to public waterbodies is one of the highlights of this program.

For isolated, inland waterbodies, a delayed fluridone treatment (mid-late June) has been effective to control Hydrilla vegetation in Medina County and in Cleveland Metroparks. Medina County Park District has used this strategy since 2019 and has little detectable Hydrilla vegetation growth. A delayed treatment helps crews assess for Hydrilla vegetation but is applied before new tubers are thought to be develop. No new vegetation or tubers were detected in Cleveland Metroparks in 2022 and treatment will stop in 2023. Monitoring will continue, as outlined in the Cleveland Metroparks Long Term Hydrilla Management Report (2018). Medina County Park District will continue to use this modified treatment schedule.

**Objective 5: Research and Education**

m. Increase public awareness of AIS, target outreach efforts and prioritize key audiences

Outreach activities reached over 1,261 people at 23 events in 2022. In-person outreach efforts were nearly doubled compared to 2021. Outreach in digital spaces including presentations, articles, and podcasts, continued in 2022. The 2023 calendar already has a mix of virtual and in-person outreach events.

Date	Group	#
1/6/2022	ODNR Aquatic Invasive Plant Training	112
1/7/2022	WVP Aquatic Plants around Ohio	24
1/13/2022	Clear Fork Chapter of Trout Unlimited presentation	32
4/1/2022	Mosquito Lake Management planning call	4
4/12/2022	Alum Creek ODNR Management meeting	11
4/22/2022	120 Outdoors podcast about hydrilla	25
5/10/2022	Tuber sampling with Americorps in CM	3
5/13/2022	Ohio AIS Committee Meeting	20
5/23/2022	Pymatuning Management phone call	7
5/26/2022	Seasonal Employee shadow from Parks West	1
5/31/2022	Tuber sampling with Americorps and Medina Co. Parks	6
6/8/2022	Mill Creek Sruvey with Western Reserve Land Cons.	8
6/26/2022	Great Lakes Landing Blitz event, Edgewater Ramp	11
6/28/2022	Mosquito Lake Boat tour with ODNR Chief Cobb	5
7/2/2022	Great Lakes Landing Blitz event, Wildwood	34
7/6/2022	Great Lakes Landing Blitz event, E72nd	30
7/9/2022	Great Lakes Landing Blitz event, Mosquito Lake	44
7/13/2022	Cuyahoga River Survey with Nat. Park Staff	14
7/19/2022	Table event at Cle. Museum of Nat. History	133
7/26/2022	Plant camp in PA	25
8/10/2022	Great Lakes Landing Blitz event, inservice for naturalists	55
8/13/2022	Great Lakes Landing Blitz event, Whiskey Island fest	113
8/15/2022	Ashtabula River sampling with TNC	4
8/31/2022	States Organization for Boating Access	60
9/14/2022	Sea Grant Network field trip to WSC	32
9/24/2022	Steelhead expo table	400
9/26/2022	Hydrilla vegetation sampling at Mosquito Creek	8
9/30/2022	Davis High school field trip to E72/Gordon Park	40

**Total for 2022 1261**

Image 4. Cleveland Metroparks reached approximately 1261 individuals through in-person and virtual events. [ODNR = Ohio Department of Natural Resources, WVP = Watershed Volunteer Program at Cleveland Metroparks, AIS = Aquatic Invasive Species, EFB = European frogbit, OWC = Old Woman Creek, OIPC = Ohio Invasive Plants Council, WSC = Watershed Stewardship Center.]

For training and recruiting partners to detect AIS, effective outreach events occur when partners met the Project Coordinator in the field for surveys, plant identification, and management activities. Joint surveys were opportunities to make aquatic plants more approachable and agencies that participated in joint surveys often go on to report aquatic invasive plants on their own.

Highlights from the 2022 outreach effort include:

- Ohio Department of Natural Resources staff from all divisions attended a January virtual training on aquatic invasive plants and reporting.
- The Cuyahoga Valley National Park and The Nature Conservancy Crew worked with the AIS project crew on a three-day vegetation sampling along 25 miles of the Cuyahoga River.
- The Project Coordinator presented on two topics at the State Organization for Boating Access and host a field trip for the National Sea Grant Network that was in Cleveland.
- The Project Coordinator coordinated with the US Army Corps of Engineers Huntington and Pittsburgh District Offices to increase awareness and prevention efforts.

Finally, plant vouchers were collected and distributed as an aspect of program outreach – to train seasonal staff and to confirm presence to other researchers. A total of forty-six (46) plant vouchers were collected and deposited at Cleveland Metroparks herbarium, 26 of those plants were then donated to the Kent State herbarium.

- n. Maintain comprehensive and current AIS website and work to develop other types of media to inform public of AIS issues

Cleveland Metroparks website has information on one aquatic invasive plant, Hydrilla, and remained unchanged in 2022. The Crooked River Cooperative Weed Management Association also has outreach information on Hydrilla and is scheduled for updates in 2023. iNaturalist has been a consistent source of AIS reports. The wide user base, geolocated photos, and ability to verify records with decent pictures make iNaturalist a clear choice for future AIS submission in Ohio. The twitter account run by the Project Coordinator (@AISplantguy) continues to be a source of engagement for the project.

**Discuss problems encountered during the grant period and how that interfered with meeting program and project objectives.**

#### Limitations and Remedies

The COVID-19 pandemic presented fewer complications during the 2022 project year.

The Project Coordinator took FMLA from April 5 – April 29, and from October 11 – November 10. The Natural Resources Specialist 3 was provided a list of actions and worked independently and exceeded expectations on grant objectives in October and November. Cleveland Metroparks staff also supported the seasonal employees and project during this time.

The project crew devoted time to support Mosquito and Alum Creek Lakes Hydrilla management projects. Travel and on-site work took attention from other pursuits in the Lake Erie Basin. In 2023, the project crew will have less on-the-ground involvement but will still provide best management practices and advice as needed. The team of stakeholders are motivated and engaged at both Alum Creek and Mosquito Creek Lakes. For large sites with priority aquatic invasive plant management, rapid response is best facilitated by local partners.

**Discuss the rate of expenditure versus progress on project. Did your original budget allow you to accomplish the goals of the project? Please describe any budgetary problems you encountered and how those could be alleviated in the future.**

Our original budget was sufficient to accomplish the goals of the project.

The 2022 budget started with a 2021 rollover (F20AS00045) of \$5,957.77. The rollover included \$2,094.50 of encumbered monies for vehicle rental and herbicide and \$3,863.27 of unencumbered monies - approximately 5.3% of the original budget. The project ended 2022 with \$2,522.53 as encumbered funds for vehicle rental and a total of \$9,845.24 is available as a cash balance. The cash balance will be budgeted for herbicide in 2023.

Expenditures for the Ohio River Watershed grant (F20AP11511) are detailed in a separate report.

**Discuss steps taken to ensure activities conducted did not contribute to the spread of invasive species.**

Cleveland Metroparks followed its the standard operating procedure for decontamination during field work. A copy of the procedure has been submitted to the Ohio Department of Natural Resources.

**Describe the system of file sharing.**

All plant occurrence and abundance data collected with the Fulcrum app was sent to ODNR in Excel spreadsheets via Microsoft OneDrive. Handheld GPS data was combined in QGIS and shapefiles were

sent to the Ohio Department of Natural Resources via Microsoft OneDrive. Paper copies of maps are retained by Cleveland Metroparks.

**Describe any plans for continuing activities funded under this grant in the future.**

We are highly motivated to continue the activities funded under this grant. Our knowledge of AIS in Ohio's Lake Erie Basin is growing, as is the network of capable, trained people who can help be the eyes and hands in the field. We have developed a strong network of engaged partners throughout Ohio in this project and we have ended 2022 in a very strong position to advance the science and practice of AIS detection and control in coming years.

File Sharing via Microsoft OneDrive with ODNR Division of Wildlife

Item	Submit	Keep in File
Quarterly progress reports	X	
Plant records.xls	X	
Technical reports	X	
Photos	X	
Survey and herbicide treatment records	X	
Outreach materials, including presentations, signage, maps, and web links	X	
Permits, Right of Entry forms	X	
Hard copies of maps		X
Rank of species based on potential for harm in OH	X	
GIS files	X	

**Financial Status Report**

**Report the amount and percentage of the budgeted grant funds expended:**

2022 Grant Budget: \$120,120.16

2022 Grant Expenditures: \$107,752.40 (89.7%)

**What is the date and amount of your latest reimbursement request?**

Cleveland Metroparks received reimbursement for the entire grant budget (\$120,120.16) on February 2, 2022. The Park District administered the funding through calendar year 2022 and will use any remaining funds to support the project in 2023.

This report was prepared for the Ohio Department of Natural Resources Division of Wildlife by Mark Warman, Aquatic Invasive Species Program Coordinator at Cleveland Metroparks.